GenCore version 5.1.6

OM protein - protein search, using sw model

Run on: July 15, 2004, 16:25:44 ; Search time 48.0597 Seconds
(without alignments)
540.877 Million cell updates/sec

Title: US-09-423-100-2
Perfect score: 470
Sequence: 1 MFPTIPLSRLFDNAMLRAHR.....NLELLRISLLLIQSWLEPVQ 92

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 1586107 seqs, 282547505 residues

Total number of hits satisfying chosen parameters: 1586107

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : A_Geneseq_29Jan04:*
1: geneseqp1980s:*
2: geneseqp1990s:*
3: geneseqp2000s:*
4: geneseqp2001s:*
5: geneseqp2002s:*
6: geneseqp2003as:*
7: geneseqp2003bs:*
8: geneseqp2004s:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	470	100.0	92	2	AAY42856	Aay42856 Human gro
2	470	100.0	134	2	AAW92265	Aaw92265 Human ant
3	470	100.0	150	2	AAY42861	Aay42861 Chimeric
4	465	98.9	140	1	AAP91041	Aap91041 Human gro
5	465	98.9	192	1	AAP90129	Aap90129 Human gro
6	465	98.9	192	2	AAW92264	Aaw92264 Human ant
7	465	98.9	261	1	AAP91299	Aap91299 Human ner
8	465	98.9	262	2	AAR11740	Aar11740 Human gro
9	465	98.9	310	2	AAR03255	Aar03255 Fusion pr

10	462	98.3	144	2	AAR05313	Aar05313 Segment o
11	462	98.3	262	1	AAP61033	Aap61033 Human bet
12	460	97.9	138	1	AAP81226	Aap81226 Sequence
13	460	97.9	191	2	AAO20110	Aao20110 Protein s
14	460	97.9	191	2	AAY15809	Aay15809 Primary a
15	460	97.9	191	2	AAY04397	Aay04397 Mutant hu
16	460	97.9	191	2	AAY04396	Aay04396 Natural h
17	460	97.9	191	3	AAY78425	Aay78425 Human gro
18	460	97.9	191	4	AAO17485	Aao17485 Human gro
19	460	97.9	191	4	AAO17486	Aao17486 Human gro
20	460	97.9	191	5	ABG31865	Abg31865 Mature hu
21	460	97.9	191	5	ABG31863	Abg31863 Mature hu
22	460	97.9	191	5	ABG31860	Abg31860 Mature hu
23	460	97.9	191	5	ABG31866	Abg31866 Mature hu
24	460	97.9	191	5	ABG31857	Abg31857 Mature hu
25	460	97.9	191	5	ABG31861	Abg31861 Mature hu
26	460	97.9	191	5	ABG31862	Abg31862 Mature hu
27	460	97.9	191	5	ABG94932	Abg94932 Human gro
28	460	97.9	191	5	ABG94967	Abg94967 Human gro
29	460	97.9	191	5	ABG94975	Abg94975 Human gro
30	460	97.9	191	5	ABG94925	Abg94925 Human gro
31	460	97.9	191	5	ABG94933	Abg94933 Human gro
32	460	97.9	191	5	ABG94940	Abg94940 Human gro
33	460	97.9	191	5	ABG94964	Abg94964 Human gro
34	460	97.9	191	5	ABG94860	Abg94860 Human gro
35	460	97.9	191	5	ABG94912	Abg94912 Human gro
36	460	97.9	191	5	ABG94919	Abg94919 Human gro
37	460	97.9	191	5	ABG94863	Abg94863 Human gro
38	460	97.9	191	5	ABG94859	Abg94859 Human gro
39	460	97.9	191	5	ABG94910	Abg94910 Human gro
40	460	97.9	191	5	ABG94920	Abg94920 Human gro
41	460	97.9	191	5	ABG94923	Abg94923 Human gro
42	460	97.9	191	5	ABG94939	Abg94939 Human gro
43	460	97.9	191	5	ABG94978	Abg94978 Human gro
44	460	97.9	191	5	ABG94913	Abg94913 Human gro
45	460	97.9	191	5	ABG94924	Abg94924 Human gro

ALIGNMENTS

RESULT 1
AAY42856
ID AAY42856 standard; protein; 92 AA.
XX
AC AAY42856;
XX
DT 19-JAN-2000 (first entry)
XX
DE Human growth hormone (hGH) N-terminal fragment #2.
XX
KW Growth hormone; chaperone; intramolecular; insulin; precursor; folding;
KW conformation; chimeric protein; cleavable; recombinant; production;
KW yield.
XX
OS Homo sapiens.
XX

PN WO9950302-A1.
XX
PD 07-OCT-1999.
XX
PF 31-MAR-1998; 98WO-CN000052.
XX
PR 31-MAR-1998; 98WO-CN000052.
XX
PA (TONG-) TONGHUA GANTECH BIOTECHNOLOGY LTD.
XX
PI Gan Z;
XX
DR WPI; 1999-610839/52.
XX
PT New chimeric proteins containing human growth hormone fragment, used
PT particularly for the production of human insulin.
XX
PS Claim 5; Page 28; 46pp; English.
XX
CC This sequence represents an N-terminal fragment of human growth hormone
CC (hGH) which is a component of a chimeric protein (AAY42861) which also
CC contains a human insulin precursor (AAY42859). The hGH portion of the
CC chimeric protein acts as an intramolecular chaperone (IMC) for the
CC insulin precursor, enabling it to fold correctly. A cleavable peptide
CC linker with a C-terminal Arg residue (AAY42857) enables the hGH portion
CC of the chimeric protein to be removed after folding has taken place.
CC Production of recombinant human insulin via an hGH-proinsulin chimeric
CC protein can provide human insulin with correctly linked cysteine bridges
CC with fewer necessary procedural steps, and hence resulting in a higher
CC yield of human insulin. The IMC sequences not only protect insulin
CC sequences from intracellular degradation by a microorganism host, but
CC also promote the folding of the fused insulin precursor, facilitate the
CC solubility of the fusion protein and decrease the intermolecular
CC interactions among the fusion proteins, thus allowing folding of the
CC fused insulin precursor at commercially useful high concentrations. The
CC procedural steps of cyanogen bromide cleavage, oxidative sulphitolysis
CC and related purification steps can thus be eliminated, along with the use
CC of high concentrations of mercaptan or the use of hydrophobic absorbent
CC resins
XX
SQ Sequence 92 AA;

Query Match 100.0%; Score 470; DB 2; Length 92;
Best Local Similarity 100.0%; Pred. No. 1.2e-39;
Matches 92; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Qy          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60

Qy         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              ||||||||||||||||||||||||||||||||
Db         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
```

RESULT 2
AAW92265

ID AAW92265 standard; protein; 134 AA.
XX
AC AAW92265;
XX
DT 08-JUN-1999 (first entry)
XX
DE Human anti-angiogenic peptide 16K hGH Met-1Pro133.
XX
KW Human; anti-angiogenic; prolactin; placental lactogen; hPL; angiogenesis;
KW growth hormone; hGH; hGH-V; capillary endothelial cell proliferation;
KW placental vascularisation; pregnancy; treatment; angiogenic disease;
KW tumour; inhibitor; malignant; angiofibroma; arteriovenous malformation;
KW arthritis; atherosclerotic plaques; corneal graft neovascularisation;
KW wound healing; proliferative retinopathy; macular degeneration; trachoma;
KW granulation; glaucoma; ocular; uveitis; fracture; Osler-Weber syndrome;
KW psoriasis; fibroplasia; scleroderma; Kaposi's sarcoma; vascular adhesion;
KW ulcer; leukaemia; reproductive disorder; contraceptive agent;
KW gene therapy; pre-eclampsia; intrauterine growth retardation;
KW placental dysfunction.
XX
OS Homo sapiens.
XX
PN WO9851323-A1.
XX
PD 19-NOV-1998.
XX
PF 12-MAY-1998; 98WO-US009691.
XX
PR 13-MAY-1997; 97US-0046394P.
XX
PA (REGC) UNIV CALIFORNIA.
XX
PI Weiner RI, Martial JA, Struman I, Taylor R;
XX
DR WPI; 1999-045192/04.
DR N-PSDB; AAX01707.
XX
PT New anti-angiogenic peptides - comprise N-terminal fragments of human
PT placental lactogen, human growth hormone, growth hormone variant or human
PT prolactin.
XX
PS Claim 4; Page 49-50; 87pp; English.
XX
CC This invention describes novel human anti-angiogenic peptides derived
CC from 10 to 150 consecutive amino acids selected from the N-terminal end
CC of human placental lactogen (hPL), human growth hormone (hGH), growth
CC hormone variant (hGH-V), or human prolactin. Such peptides (i) inhibit
CC capillary endothelial cell proliferation and organisation (ii) inhibit
CC angiogenesis in chick chorioallantoic membrane and (iii) binds to at
CC least one specific receptor which does not bind an intact full length
CC hGH, hPL, prolactin or hGH-V. The invention also describes a method for
CC diagnosing a probable abnormality of placental vascularisation during
CC pregnancy. The peptides can be used for treating an angiogenic disease in
CC a subject, for inhibiting tumour formation or growth in a patient or for
CC modulating vascularisation of a patient's placenta. In particular, the
CC peptides can be used for preventing or treating e.g. malignant tumours,
CC angiofibroma, arteriovenous malformation, arthritic such as rheumatoid

CC arthritis, atherosclerotic plaques, corneal graft neovascularisation,
CC delayed wound healing, proliferative retinopathy such as diabetic
CC retinopathy, macular degeneration, granulations such as those occurring
CC in haemophilic joints, inappropriate vascularisation in wound healing
CC such as hypertrophic scars or keloid scars, neovascular glaucoma, ocular
CC tumour, uveitis, non-union fractures, Osler-Weber syndrome, psoriasis,
CC pyogenic glaucoma, retrolental fibroplasia, scleroderma, solid tumours,
CC Kaposi's sarcoma, trachoma, vascular adhesions, chronic varicose ulcers,
CC leukaemia, and reproductive disorders such as follicular and luteal cysts
CC and choriocarcinoma. They can also be used as contraceptive agents. DNA
CC encoding the peptides can be used in gene therapy. The measurement of
CC abnormal levels of N-terminal fragments of hGH, hGH-V, prolactin or hPL
CC can be used in assays for impairment of vascular development associated
CC with pre-eclampsia, intrauterine growth retardation, and placental
CC dysfunction
XX
SQ Sequence 134 AA;

Query Match 100.0%; Score 470; DB 2; Length 134;
Best Local Similarity 100.0%; Pred. No. 1.8e-39;
Matches 92; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```
Qy          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60

Qy         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              ||||||||||||||||||||||||||||||||
Db         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
```

RESULT 3
AAY42861
ID AAY42861 standard; protein; 150 AA.
XX
AC AAY42861;
XX
DT 19-JAN-2000 (first entry)
XX
DE Chimeric protein, SEQ ID 7.
XX
KW Insulin; precursor; growth hormone; chaperone; intramolecular; folding;
KW conformation; chimeric protein; cleavable; recombinant; production;
KW yield.
XX
OS Synthetic.
OS Homo sapiens.
XX
PN WO9950302-A1.
XX
PD 07-OCT-1999.
XX
PF 31-MAR-1998; 98WO-CN000052.
XX
PR 31-MAR-1998; 98WO-CN000052.
XX
PA (TONG-) TONGHUA GANTECH BIOTECHNOLOGY LTD.

XX
PI Gan Z;
XX
DR WPI; 1999-610839/52.
XX
PT New chimeric proteins containing human growth hormone fragment, used
PT particularly for the production of human insulin.
XX
PS Claim 14; Page 30-31; 46pp; English.
XX
CC This sequence represents a chimeric protein, which contains an N-terminal
CC fragment of human growth hormone (hGH) of the sequence given in AAY42856,
CC a cleavable peptide linker (AAY42857), and a human insulin precursor
CC comprising insulin A and B chains (AAY42859). The hGH portion of the
CC chimeric protein acts as an intramolecular chaperone (IMC) for the
CC insulin precursor, enabling it to fold correctly. The cleavable peptide
CC linker has a C-terminal Arg residue which enables the hGH portion of the
CC chimeric protein to be removed after folding has taken place. Production
CC of recombinant human insulin via an hGH-proinsulin chimeric protein can
CC provide human insulin with correctly linked cysteine bridges with fewer
CC necessary procedural steps, and hence resulting in a higher yield of
CC human insulin. The IMC sequences not only protect insulin sequences from
CC intracellular degradation by a microorganism host, but also promote the
CC folding of the fused insulin precursor, facilitate the solubility of the
CC fusion protein and decrease the intermolecular interactions among the
CC fusion proteins, thus allowing folding of the fused insulin precursor at
CC commercially useful high concentrations. The procedural steps of cyanogen
CC bromide cleavage, oxidative sulphitolysis and related purification steps
CC can thus be eliminated, along with the use of high concentrations of
CC mercaptan or the use of hydrophobic absorbent resins
XX
SQ Sequence 150 AA;

Query Match 100.0%; Score 470; DB 2; Length 150;
Best Local Similarity 100.0%; Pred. No. 2e-39;
Matches 92; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Qy          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60

Qy         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |||||||||||||||||||||||||||||||
Db         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
```

RESULT 4
AAP91041
ID AAP91041 standard; protein; 140 AA.
XX
AC AAP91041;
XX
DT 24-OCT-2003 (revised)
DT 14-DEC-1989 (first entry)
XX
DE Human growth hormone segment.
XX

KW Human growth hormone; fusion protein; thrombin; geriatric dementia;
KW nervous disorders; human nerve factor.
XX
OS Homo sapiens; (human).
XX
PN EP329175-A.
XX
PD 23-AUG-1989.
XX
PF 17-FEB-1989; 89EP-00102795.
XX
PR 19-FEB-1988; 88JP-00035042.
XX
PA (TOYJ) TOSOH CORP.
XX
PI Ohtsuka E;
XX
DR WPI; 1989-243092/34.
XX
PT New human nerve growth factor gene encoding fusion protein - having
PT cleavage site for thrombin, useful for treating geriatric dementia, etc.
XX
PS Disclosure; Page 21; 38pp; English.
XX
CC Human growth hormone segment, used at the N-terminal of a fusion protein,
CC which contains a thrombin recognition site, and human beta nerve growth
CC factor (beta-NGF) at the C-terminal. Beta-NGF can be used to control
CC geriatric dementia and other nervous disorders, and can be released from
CC the fusion protein by incubation with thrombin (see AAN90577-8, AAP91034,
CC AAP91299). (Updated on 24-OCT-2003 to standardise OS field)
XX
SQ Sequence 140 AA;

Query Match 98.9%; Score 465; DB 1; Length 140;
Best Local Similarity 98.9%; Pred. No. 6e-39;
Matches 91; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

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Qy          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||| ||||||
Db          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIP 60

Qy         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              ||||||||||||||||||||||||||||||||
Db         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
```

RESULT 5
AAP90129
ID AAP90129 standard; protein; 192 AA.
XX
AC AAP90129;
XX
DT 24-OCT-2003 (revised)
DT 25-MAR-2003 (revised)
DT 06-FEB-1996 (revised)
DT 01-NOV-1989 (first entry)
XX

DE Human growth hormone.
XX
KW Human growth hormone; fusion protein; recombinant vector.
XX
OS Homo sapiens; (Human).
XX
PN JP01144981-A.
XX
PD 07-JUN-1989.
XX
PF 02-DEC-1987; 87JP-00304937.
XX
PR 02-DEC-1987; 87JP-00304937.
XX
PA (WAKT) WAKUNAGA SEIYAKU KK.
XX
DR WPI; 1989-209284/29.
DR N-PSDB; AAN90269.
XX
PT Recombinant vector contg. fused protein aminoacid coding - composed of
PT growth hormone or its polypeptide deriv. and foreign protein.
XX
PS Disclosure; Fig 1; 19pp; Japanese.
XX
CC The invention consists of a vector contg. a fusion protein which is
CC formed by ligating, downstream of a promoter, hGH or a deriv. (pref.
CC formed by subtstn. of Met-14 with Leu) and a foreign protein. Stability
CC of the vector in the host is greatly increased so the protein yield is
CC higher. (Updated on 25-MAR-2003 to correct PA field.) (Updated on 24-OCT-
CC 2003 to standardise OS field)
XX
SQ Sequence 192 AA;

Query Match 98.9%; Score 465; DB 1; Length 192;
Best Local Similarity 98.9%; Pred. No. 8.6e-39;
Matches 91; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

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Qy          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||| ||||||
Db          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIP 60

Qy         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              ||||||||||||||||||||||||||||||||
Db         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
```

RESULT 6
AAW92264
ID AAW92264 standard; protein; 192 AA.
XX
AC AAW92264;
XX
DT 08-JUN-1999 (first entry)
XX
DE Human anti-angiogenic peptide hGH Met-1Phe191.
XX
KW Human; anti-angiogenic; prolactin; placental lactogen; hPL; angiogenesis;

KW growth hormone; hGH; hGH-V; capillary endothelial cell proliferation;
KW placental vascularisation; pregnancy; treatment; angiogenic disease;
KW tumour; inhibitor; malignant; angiofibroma; arteriovenous malformation;
KW arthritis; atherosclerotic plaques; corneal graft neovascularisation;
KW wound healing; proliferative retinopathy; macular degeneration; trachoma;
KW granulation; glaucoma; ocular; uveitis; fracture; Osler-Weber syndrome;
KW psoriasis; fibroplasia; scleroderma; Kaposi's sarcoma; vascular adhesion;
KW ulcer; leukaemia; reproductive disorder; contraceptive agent;
KW gene therapy; pre-eclampsia; intrauterine growth retardation;
KW placental dysfunction.
XX
OS Homo sapiens.
XX
PN WO9851323-A1.
XX
PD 19-NOV-1998.
XX
PF 12-MAY-1998; 98WO-US009691.
XX
PR 13-MAY-1997; 97US-0046394P.
XX
PA (REGC) UNIV CALIFORNIA.
XX
PI Weiner RI, Martial JA, Struman I, Taylor R;
XX
DR WPI; 1999-045192/04.
DR N-PSDB; AAX01706.
XX
PT New anti-angiogenic peptides - comprise N-terminal fragments of human
PT placental lactogen, human growth hormone, growth hormone variant or human
PT prolactin.
XX
PS Example 3; Page 49; 87pp; English.
XX
CC This invention describes novel human anti-angiogenic peptides derived
CC from 10 to 150 consecutive amino acids selected from the N-terminal end
CC of human placental lactogen (hPL), human growth hormone (hGH), growth
CC hormone variant (hGH-V), or human prolactin. Such peptides (i) inhibit
CC capillary endothelial cell proliferation and organisation (ii) inhibit
CC angiogenesis in chick chorioallantoic membrane and (iii) binds to at
CC least one specific receptor which does not bind an intact full length
CC hGH, hPL, prolactin or hGH-V. The invention also describes a method for
CC diagnosing a probable abnormality of placental vascularisation during
CC pregnancy. The peptides can be used for treating an angiogenic disease in
CC a subject, for inhibiting tumour formation or growth in a patient or for
CC modulating vascularisation of a patient's placenta. In particular, the
CC peptides can be used for preventing or treating e.g. malignant tumours,
CC angiofibroma, arteriovenous malformation, arthritic such as rheumatoid
CC arthritis, atherosclerotic plaques, corneal graft neovascularisation,
CC delayed wound healing, proliferative retinopathy such as diabetic
CC retinopathy, macular degeneration, granulations such as those occurring
CC in haemophilic joints, inappropriate vascularisation in wound healing
CC such as hypertrophic scars or keloid scars, neovascular glaucoma, ocular
CC tumour, uveitis, non-union fractures, Osler-Weber syndrome, psoriasis,
CC pyogenic glaucoma, retrolental fibroplasia, scleroderma, solid tumours,
CC Kaposi's sarcoma, trachoma, vascular adhesions, chronic varicose ulcers,
CC leukaemia, and reproductive disorders such as follicular and luteal cysts

CC and choriocarcinoma. They can also be used as contraceptive agents. DNA
CC encoding the peptides can be used in gene therapy. The measurement of
CC abnormal levels of N-terminal fragments of hGH, hGH-V, prolactin or hPL
CC can be used in assays for impairment of vascular development associated
CC with pre-eclampsia, intrauterine growth retardation, and placental
CC dysfunction
XX
SQ Sequence 192 AA;

Query Match 98.9%; Score 465; DB 2; Length 192;
Best Local Similarity 98.9%; Pred. No. 8.6e-39;
Matches 91; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

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Qy          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||| ||||||
Db          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIP 60

Qy         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |||||||||||||||||||||||||||||||
Db         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
```

RESULT 7
AAP91299
ID AAP91299 standard; protein; 261 AA.
XX
AC AAP91299;
XX
DT 24-OCT-2003 (revised)
DT 14-DEC-1989 (first entry)
XX
DE Human nerve growth factor and human growth hormone fusion protein.
XX
KW Human nerve growth factor; fusion protein; thrombin; geriatric dementia;
KW nervous disorders; human growth hormone.
XX
OS Homo sapiens; (human).
XX
FH Key Location/Qualifiers
FT Region 1. .140
FT Region 141. .143
FT Region 144. .261
XX
PN EP329175-A.
XX
PD 23-AUG-1989.
XX
PF 17-FEB-1989; 89EP-00102795.
XX
PR 19-FEB-1988; 88JP-00035042.
XX
PA (TOYJ) TOSOH CORP.
XX
PI Ohtsuka E;
XX
DR WPI; 1989-243092/34.
XX

PT New human nerve growth factor gene encoding fusion protein - having
PT cleavage site for thrombin, useful for treating geriatric dementia, etc.
XX
PS Claim 36; Page 31-32; 38pp; English.
XX
CC Fusion protein consisting of human growth hormone at the N-terminal end
CC (1st region), a 3 amino acid sequence representing thrombin recognition
CC site, and human beta nerve growth factor (beta-NGF) at the C-terminal.
CC Beta-NGF can be used to control geriatric dementia and other nervous
CC disorders, and can be released from the fusion protein by incubation with
CC thrombin (see AAN90577-8, AAP91034, AAP91041). (Updated on 24-OCT-2003 to
CC standardise OS field)
XX
SQ Sequence 261 AA;

Query Match 98.9%; Score 465; DB 1; Length 261;
Best Local Similarity 98.9%; Pred. No. 1.2e-38;
Matches 91; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

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Qy          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||| ||||||
Db          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIP 60

Qy         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |||||||||||||||||||||||||||||||
Db         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
```

RESULT 8
AAR11740
ID AAR11740 standard; protein; 262 AA.
XX
AC AAR11740;
XX
DT 25-MAR-2003 (revised)
DT 25-JUN-1991 (first entry)
XX
DE Human growth hormone/human nerve growth factor beta fusion protein.
XX
KW hGH; hNGF; nervous system diseases; dementia.
XX
OS Homo sapiens.
XX
PN JP03067598-A.
XX
PD 22-MAR-1991.
XX
PF 07-AUG-1989; 89JP-00202835.
XX
PR 07-AUG-1989; 89JP-00202835.
XX
PA (TOYJ) TOSOH CORP.
XX
DR WPI; 1991-128768/18.
DR N-PSDB; AAQ11578.
XX
PT Purificn. of human neuron growth factor beta-sub:unit-contg. protein - by

PT contacting with gel having cation exchange gp. in presence of urea.
XX
PS Disclosure; Fig 1; 7pp; Japanese.
XX
CC A recombinant human nerve growth factor beta subunit-contg. protein can
CC be produced as this fusion protein. It is purified by contacting a gel
CC having a cation exchange gp. with the fusion protein, in the presence of
CC urea. The purified protein is useful in a medicament for treating
CC disorders of the nervous system, eg dementia. (Updated on 25-MAR-2003 to
CC correct PF field.)
XX
SQ Sequence 262 AA;

Query Match 98.9%; Score 465; DB 2; Length 262;
Best Local Similarity 98.9%; Pred. No. 1.2e-38;
Matches 91; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

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Qy          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||| ||||||
Db          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIP 60

Qy         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |||||||||||||||||||||||||||||||
Db         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
```

RESULT 9
AAR03255
ID AAR03255 standard; protein; 310 AA.
XX
AC AAR03255;
XX
DT 19-JUL-1990 (first entry)
XX
DE Fusion protein of B-cell stimulatory factor-2 and B-cell differentiation
DE factor.
XX
KW B-cell stimulatory factor-2; interleukin-6; B-cell differentiation;
KW interleukin-5; fusion protein.
XX
OS Homo sapiens.
XX
PN JP02013375-A.
XX
PD 17-JAN-1990.
XX
PF 01-JUL-1988; 88JP-00162556.
XX
PR 01-JUL-1988; 88JP-00162556.
XX
PA (TOYJ) TOSOH CORP.
XX
DR WPI; 1990-062207/09.
DR N-PSDB; AAQ02028.
XX
PT Prepn. of human B cell differentiation factor - from specified DNA
PT sequence segment, by recombinant DNA technique, gives protein of

PT specified amino acid sequence.
XX
PS Claim 31; Page 9; 17pp; Japanese.
XX
CC The protein is produced by fusing DNA encoding BDF (IL-) with DNA
CC encoding BSF-2 (IL-5)and ligating the product into an expression vector
CC See also AAR05311 and AAR05313
XX
SQ Sequence 310 AA;

Query Match 98.9%; Score 465; DB 2; Length 310;
Best Local Similarity 98.9%; Pred. No. 1.5e-38;
Matches 91; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

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Qy          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
              |||||||||||||||||||||||||||||||||||||||||||||||||||||| ||||||
Db          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIP 60

Qy         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |||||||||||||||||||||||||||||||
Db         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
```

RESULT 10
AAR05313
ID AAR05313 standard; protein; 144 AA.
XX
AC AAR05313;
XX
DT 19-JUL-1990 (first entry)
XX
DE Segment of B-cell stimulatory factor-2 (IL-5).
XX
KW B-cell stimulatory factor-2; interleukin-5.
XX
OS Homo sapiens.
XX
PN JP02013375-A.
XX
PD 17-JAN-1990.
XX
PF 01-JUL-1988; 88JP-00162556.
XX
PR 01-JUL-1988; 88JP-00162556.
XX
PA (TOYJ) TOSOH CORP.
XX
DR WPI; 1990-062207/09.
DR N-PSDB; AAQ02028.
XX
PT Prepn. of human B cell differentiation factor - from specified DNA
PT sequence segment, by recombinant DNA technique, gives protein of
PT specified amino acid sequence.
XX
PS Disclosure; Page 9; 17pp; Japanese.
XX
CC The sequence encoding this protein can be fused with DNA encoding B-cell

CC differentiation factor (IL-6) and ligated into an expression vector for
CC prodn. of a fusion protein. See also AAR05311
XX
SQ Sequence 144 AA;

Query Match 98.3%; Score 462; DB 2; Length 144;
Best Local Similarity 97.8%; Pred. No. 1.2e-38;
Matches 90; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

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Qy          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
              ||||||||||||||||||||||||||||||||||||||||||||:|||||| ||||||
Db          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLENPQTSLCFSESIP 60

Qy         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |||||||||||||||||||||||||||||||
Db         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
```

RESULT 11
AAP61033
ID AAP61033 standard; protein; 262 AA.
XX
AC AAP61033;
XX
DT 25-OCT-1991 (first entry)
XX
DE Human beta-nerve growth factor gene product.
XX
KW Beta-NGF; E.coli; ds.
XX
OS Homo sapiens.
XX
FH Key Location/Qualifiers
FT Protein 145. .262
XX
PN JP61205485-A.
XX
PD 11-SEP-1986.
XX
PF 09-MAR-1985; 85JP-00045773.
XX
PR 09-MAR-1985; 85JP-00045773.
XX
PA (OTSU/) OTSUKA E.
XX
DR WPI; 1986-281696/43.
XX
PT Gene segment of human nerve growth factor - used in prodn. of NGF-
PT producing recombinant Escherichia strain.
XX
PS Claim 32; Page 482; 71pp; Japanese.
XX
CC The protein is a direct translation of the upstream tryptophan promoter-
CC operator lacking its attenuation sequence and human beta-NGF sequence.
CC The product may be efficiently expressed from a transformed E.coli
CC expression system. See also AAN60816-7
XX

SQ Sequence 262 AA;

Query Match 98.3%; Score 462; DB 1; Length 262;
Best Local Similarity 97.8%; Pred. No. 2.4e-38;
Matches 90; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

```
Qy          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||| ||||||
Db          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIP 60

Qy         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |||||||:|||||||||||||||||||||||||
Db         61 TPSNREQTQQKSNLELLRISLLLIQSWLEPVQ 92
```

RESULT 12
AAP81226
ID AAP81226 standard; protein; 138 AA.
XX
AC AAP81226;
XX
DT 25-MAR-2003 (revised)
DT 20-NOV-1990 (first entry)
XX
DE Sequence of protein with somatomedin-like activity.
XX
KW Growth hormone.
XX
OS Synthetic.
XX
PN JP63167798-A.
XX
PD 11-JUL-1988.
XX
PF 29-DEC-1986; 86JP-00310177.
XX
PR 29-DEC-1986; 86JP-00310177.
XX
PA (TOYJ) TOYO SODA MFG CO LTD.
XX
DR WPI; 1988-232632/33.
DR N-PSDB; AAN81605.
XX
PT Polypeptide with somatomedin-like activity - by culturing bacterium
PT transformed by plasmid contg. gene segment with specified DNA sequence.
XX
PS Claim 2(1); Page 609; 9pp; Japanese.
XX
CC The polypeptide (AAP81226) with somatomedin-like activity and the DNA
CC (AAN81605) encoding it are claimed. A Met resicual gp. may be added to
CC the N-terminal. The polypeptide acts on the bone structure of mammals,
CC including humans, to promote bone growth. The polypeptide has high
CC production rate and is easily extracted from bacterial culture medium and
CC refined for use as a bone growth accelerator. (Updated on 25-MAR-2003 to
CC correct PA field.)
XX
SQ Sequence 138 AA;

Query Match 97.9%; Score 460; DB 1; Length 138;
Best Local Similarity 98.9%; Pred. No. 1.9e-38;
Matches 90; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

```
Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
              |||||||||||||||||||||||||||||||||||||||||||||||||||| |||||||
Db          1 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 60

Qy         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |||||||||||||||||||||||||||||||
Db         61 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 91
```

RESULT 13
AAO20110
ID AAO20110 standard; protein; 191 AA.
XX
AC AAO20110;
XX
DT 06-AUG-2002 (first entry)
XX
DE Protein sequence of the hGH growth hormone cDNA.
XX
KW Serum albumin-growth hormone fusion protein; growth hormone;
KW Down's syndrome.
XX
OS Unidentified.
XX
PN KR99076789-A.
XX
PD 15-OCT-1999.
XX
PF 25-JUN-1998; 98KR-00704914.
XX
PR 30-DEC-1995; 95GB-00026733.
PR 19-DEC-1996; 96WO-GB003164.
XX
PA (DELZ) DELTA BIOTECHNOLOGY LTD.
XX
PI Ballance DJ;
XX
DR WPI; 1997-363680/33.
DR N-PSDB; AAK99565.
XX
PT Serum albumin-growth hormone fusion protein - useful to treat growth
PT hormone related diseases, e.g. Down's syndrome.
XX
PS Disclosure; Fig 1; 21pp; Korean.
XX
CC The invention relates to a serum albumin-growth hormone fusion protein -
CC useful to treat growth hormone related diseases such as Down's syndrome.
CC This sequence represents a protein of the serum albumin-growth hormone
CC cDNA of the invention
XX
SQ Sequence 191 AA;

Query Match 97.9%; Score 460; DB 2; Length 191;
Best Local Similarity 98.9%; Pred. No. 2.7e-38;
Matches 90; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

```
Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
              |||||||||||||||||||||||||||||||||||||||||||||||||||| |||||||
Db          1 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 60

Qy         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |||||||||||||||||||||||||||||||
Db         61 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 91
```

RESULT 14
AAY15809
ID AAY15809 standard; protein; 191 AA.
XX
AC AAY15809;
XX
DT 28-JUL-1999 (first entry)
XX
DE Primary amino acid sequence of native human growth hormone.
XX
KW Detection; fluoresce; illegal misuse; growth substance; athlete;
KW domesticated farm animal; cattle; human growth hormone.
XX
OS Homo sapiens.
XX
PN WO9926069-A1.
XX
PD 27-MAY-1999.
XX
PF 16-NOV-1998; 98WO-GB003449.
XX
PR 14-NOV-1997; 97GB-00023955.
XX
PA (GENE-) GENERIC BIOLOGICALS LTD.
XX
PI Murphy JP, Atkinson A;
XX
DR WPI; 1999-338072/28.
XX
PT Use of tagged exogenous polypeptide.
XX
PS Disclosure; Fig 1; 38pp; English.
XX
CC The specification describes a method of detecting an exogenously
CC administered substance from a naturally-occurring endogenous substance,
CC the exogenous substance being tagged so that it fluoresces differently
CC from the endogenous one at a suitable wavelength. The tagging may consist
CC of one or more substitutions in tagged growth hormone selected from G40Y,
CC F52Y, W86F, Y, L, I or V F103Y or I137Y; The method is used to
CC distinguish between exogenously administered substances as compared to
CC naturally-occurring endogenous substances. Especially mentioned is the
CC illegal misuse of growth substances by athletes or in domesticated farm
CC animals e.g. cattle. The present sequence represents native human growth
CC hormone which may be used in the method of the invention

XX
SQ Sequence 191 AA;

Query Match 97.9%; Score 460; DB 2; Length 191;
Best Local Similarity 98.9%; Pred. No. 2.7e-38;
Matches 90; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

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Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
              |||||||||||||||||||||||||||||||||||||||||||||||||||| |||||||
Db          1 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 60

Qy         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |||||||||||||||||||||||||||||||
Db         61 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 91
```

RESULT 15
AAY04397
ID AAY04397 standard; protein; 191 AA.
XX
AC AAY04397;
XX
DT 29-JUN-1999 (first entry)
XX
DE Mutant human 22kDa growth hormone.
XX
KW Human; 22kDa growth hormone; hGH; mutant; thrombin; resistance; plasmin;
KW decomposition.
XX
OS Homo sapiens.
OS Synthetic.
XX
PN JP11092499-A.
XX
PD 06-APR-1999.
XX
PF 22-SEP-1997; 97JP-00275277.
XX
PR 22-SEP-1997; 97JP-00275277.
XX
PA (SUMU) SUMITOMO SEIYAKU KK.
XX
DR WPI; 1999-283567/24.
XX
PT A human growth hormone mutant - with equivalent activity to natural human
PT growth hormone.
XX
PS Claim 1; Page 6-7; 10pp; Japanese.
XX
CC The present invention describes a human growth hormone mutant in which
CC the 134th Arg and the 135th Thr are replaced respectively by Asp and Pro
CC in the 1st to the 191st amino acid sequence of natural type human 22 kDa
CC growth hormone (hGH) and which has a resistance against decomposition by
CC thrombin. The present sequence represents the mutant hGH. Also described
CC are: (1) a hGH mutant in which the 134th Arg, the 135th Thr and the 140th
CC Lys are replaced respectively by Asp, Pro and Ala in the amino acid
CC sequence of natural type hGH and which has a resistance against

CC decomposition by thrombin and plasmin; and (2) a drug preparation
CC containing the above hGH mutant as the active component. The mutant hGH
CC shows an activity approximately equivalent to that of natural type hGH
CC and shows a high stability in blood and body fluid
XX
SQ Sequence 191 AA;

Query Match 97.9%; Score 460; DB 2; Length 191;
Best Local Similarity 98.9%; Pred. No. 2.7e-38;
Matches 90; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

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Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
              ||||||||||||||||||||||||||||||||||||||||||||||||||| |||||||
Db          1 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 60

Qy         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |||||||||||||||||||||||||||||||
Db         61 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 91
```

Search completed: July 15, 2004, 16:35:31
Job time : 48.0597 secs

GenCore version 5.1.6

OM protein - protein search, using sw model

Run on: July 15, 2004, 16:30:45 ; Search time 13.903 Seconds
(without alignments)
341.624 Million cell updates/sec

Title: US-09-423-100-2
Perfect score: 470
Sequence: 1 MFPTIPLSRLFDNAMLRAHR.....NLELLRISLLLIQSWLEPVQ 92

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 389414 seqs, 51625971 residues

Total number of hits satisfying chosen parameters: 389414

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

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1: /cgn2_6/ptodata/2/iaa/5A_COMB.pep:*
2: /cgn2_6/ptodata/2/iaa/5B_COMB.pep:*
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4: /cgn2_6/ptodata/2/iaa/6B_COMB.pep:*
5: /cgn2_6/ptodata/2/iaa/PCTUS_COMB.pep:*
6: /cgn2_6/ptodata/2/iaa/backfiles1.pep:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	465	98.9	192	1	US-08-093-383-1	Sequence 1, Appli
2	460	97.9	191	4	US-09-284-878-5	Sequence 5, Appli
3	460	97.9	191	4	US-09-462-941-1	Sequence 1, Appli
4	460	97.9	191	4	US-09-554-451-1	Sequence 1, Appli
5	460	97.9	194	2	US-08-383-621-4	Sequence 4, Appli
6	460	97.9	194	3	US-08-459-906-4	Sequence 4, Appli
7	460	97.9	217	3	US-08-589-028-10	Sequence 10, Appl
8	460	97.9	217	3	US-08-784-582-10	Sequence 10, Appl
9	460	97.9	217	3	US-08-785-271-10	Sequence 10, Appl
10	460	97.9	217	3	US-08-759-628-11	Sequence 11, Appl
11	460	97.9	217	4	US-09-284-878-1	Sequence 1, Appli

12	460	97.9	217	4	US-09-511-024A-1	Sequence 1, Appli
13	460	97.9	241	4	US-09-424-620B-25	Sequence 25, Appl
14	460	97.9	245	4	US-09-280-030-66	Sequence 66, Appl
15	460	97.9	274	3	US-08-784-582-71	Sequence 71, Appl
16	460	97.9	360	3	US-08-784-582-73	Sequence 73, Appl
17	455	96.8	191	4	US-09-554-451-3	Sequence 3, Appli
18	454	96.6	191	4	US-09-465-461-1	Sequence 1, Appli
19	454	96.6	217	1	US-08-187-756C-4	Sequence 4, Appli
20	454	96.6	217	1	US-08-469-486-51	Sequence 51, Appl
21	454	96.6	217	2	US-08-469-658-51	Sequence 51, Appl
22	454	96.6	217	2	US-08-710-324A-4	Sequence 4, Appli
23	454	96.6	217	4	US-09-411-657-4	Sequence 4, Appli
24	453	96.4	400	4	US-09-420-819-37	Sequence 37, Appl
25	453	96.4	401	4	US-09-420-819-36	Sequence 36, Appl
26	447	95.1	191	3	US-08-800-215C-18	Sequence 18, Appl
27	447	95.1	191	4	US-09-511-024A-4	Sequence 4, Appli
28	445	94.7	191	3	US-08-800-215C-16	Sequence 16, Appl
29	445	94.7	191	3	US-08-800-215C-20	Sequence 20, Appl
30	442	94.0	191	4	US-09-511-024A-9	Sequence 9, Appli
31	441	93.8	191	4	US-09-511-024A-5	Sequence 5, Appli
32	434	92.3	191	4	US-09-511-024A-3	Sequence 3, Appli
33	434	92.3	191	4	US-09-511-024A-6	Sequence 6, Appli
34	409	87.0	190	4	US-09-511-024A-13	Sequence 13, Appl
35	402	85.5	190	4	US-09-511-024A-10	Sequence 10, Appl
36	402	85.5	190	4	US-09-511-024A-12	Sequence 12, Appl
37	402	85.5	191	4	US-09-511-024A-7	Sequence 7, Appli
38	399	84.9	190	4	US-09-511-024A-11	Sequence 11, Appl
39	395	84.0	191	4	US-09-511-024A-8	Sequence 8, Appli
40	364.5	77.6	176	3	US-08-791-728-1	Sequence 1, Appli
41	364.5	77.6	176	4	US-08-990-774-1	Sequence 1, Appli
42	358.5	76.3	176	3	US-08-791-728-2	Sequence 2, Appli
43	358.5	76.3	176	4	US-08-990-774-2	Sequence 2, Appli
44	340	72.3	168	6	5424199-3	Patent No. 5424199
45	333.5	71.0	198	1	US-08-187-756C-5	Sequence 5, Appli

ALIGNMENTS

```
RESULT 1
US-08-093-383-1
; Sequence 1, Application US/08093383
; Patent No. 5489529
;  GENERAL INFORMATION:
;    APPLICANT:  DeBoer, Herman A.
;    APPLICANT:  Heyneker, Herbert L.
;    APPLICANT:  Seeburg, Peter H.
;    TITLE OF INVENTION:  DNA for Expression of Bovine Growth Hormone
;    NUMBER OF SEQUENCES:  30
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
```

```
;       MEDIUM TYPE:  5.25 inch, 360 Kb floppy disk
;       COMPUTER:  IBM PC compatible
;       OPERATING SYSTEM:  PC-DOS/MS-DOS
;       SOFTWARE:  patin (Genentech)
;     CURRENT APPLICATION DATA:
;       APPLICATION NUMBER:  US/08/093,383
;       FILING DATE:  14-JUL-1993
;       CLASSIFICATION:  435
;     PRIOR APPLICATION DATA:
;       APPLICATION NUMBER:  07/619827
;       FILING DATE:  28-NOV-1990
;     PRIOR APPLICATION DATA:
;       APPLICATION NUMBER:  07/198824
;       FILING DATE:  05-APR-1988
;     PRIOR APPLICATION DATA:
;       APPLICATION NUMBER:  06/632361
;       FILING DATE:  19-JUL-1984
;     PRIOR APPLICATION DATA:
;       APPLICATION NUMBER:  06/303687
;       FILING DATE:  18-SEP-1981
;     ATTORNEY/AGENT INFORMATION:
;       NAME:  Johnston, Sean A.
;       REGISTRATION NUMBER:  P35,910
;       REFERENCE/DOCKET NUMBER:  46C4
;     TELECOMMUNICATION INFORMATION:
;       TELEPHONE:  415/225-3562
;       TELEFAX:  415/952-9881
;       TELEX:  910/371-7168
;   INFORMATION FOR SEQ ID NO:  1:
;     SEQUENCE CHARACTERISTICS:
;       LENGTH:  192 amino acids
;       TYPE:  amino acid
;       TOPOLOGY:  linear
US-08-093-383-1

  Query Match             98.9%;  Score 465;  DB 1;  Length 192;
  Best Local Similarity   98.9%;  Pred. No. 1.8e-51;
  Matches   91;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||| ||||||
Db          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIP 60

Qy         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              ||||||||||||||||||||||||||||||||
Db         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92


RESULT 2
US-09-284-878-5
; Sequence 5, Application US/09284878
; Patent No. 6342375
; GENERAL INFORMATION:
;  APPLICANT:  Olazaran, Martha Guerrero
;  APPLICANT:  Saldana, Hugo Barrera
;  APPLICANT:  Salvado, Jose Maria Viader
```

; TITLE OF INVENTION: Genetically Modified Methylotrophic P. pastoris Yeast for the
; TITLE OF INVENTION: Production and Secretion of the Human Growth Hormone
; FILE REFERENCE: 1829.0010000
; CURRENT APPLICATION NUMBER: US/09/284,878
; CURRENT FILING DATE: 1999-07-21
; PRIOR APPLICATION NUMBER: PCT/MX97/00033
; PRIOR FILING DATE: 1997-10-24
; NUMBER OF SEQ ID NOS: 9
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 5
; LENGTH: 191
; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-284-878-5

Query Match 97.9%; Score 460; DB 4; Length 191;
Best Local Similarity 98.9%; Pred. No. 7.7e-51;
Matches 90; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

```
Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
              |||||||||||||||||||||||||||||||||||||||||||||||||||||| |||||||
Db          1 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 60

Qy         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |||||||||||||||||||||||||||||||
Db         61 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 91
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RESULT 3
US-09-462-941-1
; Sequence 1, Application US/09462941
; Patent No. 6608183
; GENERAL INFORMATION:
; APPLICANT: Cox III, George N
; APPLICANT: Bolder Biotechnology, Inc.
; TITLE OF INVENTION: Derivatives of Growth Hormone and Related Proteins
; FILE REFERENCE: 4152-1-PUS
; CURRENT APPLICATION NUMBER: US/09/462,941
; CURRENT FILING DATE: 2000-01-14
; PRIOR APPLICATION NUMBER: 60/052,516
; PRIOR FILING DATE: 1997-07-14
; NUMBER OF SEQ ID NOS: 41
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 1
; LENGTH: 191
; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-462-941-1

Query Match 97.9%; Score 460; DB 4; Length 191;
Best Local Similarity 98.9%; Pred. No. 7.7e-51;
Matches 90; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

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Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
              |||||||||||||||||||||||||||||||||||||||||||||||||||||| |||||||
Db          1 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 60
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Qy          62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
               |||||||||||||||||||||||||||||||
Db          61 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 91


RESULT 4
US-09-554-451-1
; Sequence 1, Application US/09554451
; Patent No. 6680207
;   GENERAL INFORMATION:
;        APPLICANT: Jonathan Paul MURPHY
;                   Anthony ATKINSON
;        TITLE OF INVENTION: Detection of Molecules in Samples
;        NUMBER OF SEQUENCES: 9
;        CORRESPONDENCE ADDRESS:
;             ADDRESSEE: Pillsbury Winthrop, L.L.P.
;             STREET: 1100 New York Ave., N.W.
;             CITY: Washington
;             STATE: D.C.
;             COUNTRY: U.S.A.
;             ZIP: 20005
;        COMPUTER READABLE FORM:
;             MEDIUM TYPE: Diskette
;             COMPUTER: IBM PC compatible
;             OPERATING SYSTEM: PC-DOS/MS-DOS
;             SOFTWARE: MS Word
;        CURRENT APPLICATION DATA:
;             APPLICATION NUMBER: US/09/554,451
;             FILING DATE: 15-May-2000
;             CLASSIFICATION: <Unknown>
;        PRIOR APPLICATION DATA:
;             APPLICATION NUMBER: PCT/GB98/03449
;             FILING DATE: No. 6680207ember 16, 1998
;             APPLICATION NUMBER: GB 9723955.2
;             FILING DATE: No. 6680207ember 14, 1997
;   INFORMATION FOR SEQ ID NO: 1:
;        SEQUENCE CHARACTERISTICS:
;             LENGTH: 191 amino acids
;             TYPE: amino acid
;             STRANDEDNESS: single
;             TOPOLOGY: linear
;        SEQUENCE DESCRIPTION: SEQ ID NO: 1:
US-09-554-451-1

  Query Match             97.9%;  Score 460;  DB 4;  Length 191;
  Best Local Similarity   98.9%;  Pred. No. 7.7e-51;
  Matches   90;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy           2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
               |||||||||||||||||||||||||||||||||||||||||||||||||||||| |||||||
Db           1 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 60

Qy          62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
               |||||||||||||||||||||||||||||||
Db          61 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 91
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RESULT 5
US-08-383-621-4
; Sequence 4, Application US/08383621
; Patent No. 5951972
; GENERAL INFORMATION:
; APPLICANT: Daley, Michael J.
; APPLICANT: Buckwalter, Brian L.
; APPLICANT: Cady, Susan M.
; APPLICANT: Shieh, Hong-Ming
; APPLICANT: Bohlen, Peter
; APPLICANT: Seddon, Andrew P.
; TITLE OF INVENTION: Stabilization Of Somatotropins And Other
; TITLE OF INVENTION: Proteins By Modification Of Cysteine Residues
; NUMBER OF SEQUENCES: 11
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Dr. Estelle J. Tsevdos
; STREET: 1937 West Main Street, P.O. Box 60
; CITY: Stamford
; STATE: Connecticut
; COUNTRY: U.S.A.
; ZIP: 06904-0060
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/383,621
; FILING DATE: 06-FEB-1995
; CLASSIFICATION: 514
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 07/766,142
; FILING DATE: 25-SEP-1991
; ATTORNEY/AGENT INFORMATION:
; NAME: Tsevdos, Estelle J.
; REGISTRATION NUMBER: 31,145
; REFERENCE/DOCKET NUMBER: 31,278-01
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 203-321-2756
; TELEFAX: 203-321-2971
; TELEX: 203-710-474-4059
; INFORMATION FOR SEQ ID NO: 4:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 194 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: protein
US-08-383-621-4

Query Match 97.9%; Score 460; DB 2; Length 194;
Best Local Similarity 98.9%; Pred. No. 7.8e-51;
Matches 90; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
||||||||||||||||||||||||||||||||||||||||||||||||||||||| |||||||
Db 4 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 63

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Qy          62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
               |||||||||||||||||||||||||||||||
Db          64 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 94
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RESULT 6
US-08-459-906-4
; Sequence 4, Application US/08459906
; Patent No. 6010999
; GENERAL INFORMATION:
; APPLICANT: Daley, Michael J.
; APPLICANT: Buckwalter, Brian L.
; APPLICANT: Cady, Susan M.
; APPLICANT: Shieh, Hong-Ming
; APPLICANT: Bohlen, Peter
; APPLICANT: Seddon, Andrew P.
; TITLE OF INVENTION: Stabilization of Somatotropins and Other
; TITLE OF INVENTION: Proteins by Modification of Cysteine Residues
; NUMBER OF SEQUENCES: 11
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: American Cyanamid Company
; STREET: One Cyanamid Plaza
; CITY: Wayne
; STATE: New Jersey
; COUNTRY: U.S.A.
; ZIP: 07470-8426
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/459,906
; FILING DATE: 02-JUN-1995
; CLASSIFICATION: 514
; ATTORNEY/AGENT INFORMATION:
; NAME: Webster, Darryl L.
; REGISTRATION NUMBER: 34,276
; REFERENCE/DOCKET NUMBER: 31,278-03
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 201-831-3247
; TELEFAX: 201-831-3305
; INFORMATION FOR SEQ ID NO: 4:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 194 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: protein
US-08-459-906-4

Query Match 97.9%; Score 460; DB 3; Length 194;
Best Local Similarity 98.9%; Pred. No. 7.8e-51;
Matches 90; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

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Qy           2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
               |||||||||||||||||||||||||||||||||||||||||||||||||||||| |||||||
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Db          4 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 63

Qy         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |||||||||||||||||||||||||||||||
Db         64 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 94


RESULT 7
US-08-589-028-10
; Sequence 10, Application US/08589028
; Patent No. 6087129
;  GENERAL INFORMATION:
;    APPLICANT:  Newgard, Christopher B.
;    APPLICANT:  Halban, Philippe
;    APPLICANT:  No. 6087129mington, Karl D.
;    APPLICANT:  Clark, Samuel A.
;    APPLICANT:  Thigpen, Anice E.
;    APPLICANT:  Quaade, Christian
;    APPLICANT:  Kruse, Fred
;    TITLE OF INVENTION:  Recombinant Expression of Proteins From
;    TITLE OF INVENTION:  Secretory Cell Lines
;    NUMBER OF SEQUENCES:  50
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Arnold, White & Durkee
;      STREET:  P. O. Box 4433
;      CITY:  Houston
;      STATE:  TX
;      COUNTRY:  USA
;      ZIP:  77210-4433
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.30
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/589,028
;      FILING DATE:  Concurrently Herewith
;      CLASSIFICATION:  435
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Highlander, Steven L.
;      REGISTRATION NUMBER:  47,642
;      REFERENCE/DOCKET NUMBER:  UTSD:426\HYL
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (512) 418-3000
;      TELEFAX:  (512) 474-7577
;  INFORMATION FOR SEQ ID NO:  10:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  217 amino acids
;      TYPE:  amino acid
;      STRANDEDNESS:
;      TOPOLOGY:  linear
US-08-589-028-10

  Query Match             97.9%;  Score 460;  DB 3;  Length 217;
  Best Local Similarity   98.9%;  Pred. No. 9.1e-51;
  Matches   90;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;
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Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
              ||||||||||||||||||||||||||||||||||||||||||||||||||| |||||||
Db         27 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 86

Qy         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |||||||||||||||||||||||||||||||
Db         87 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 117


RESULT 8
US-08-784-582-10
; Sequence 10, Application US/08784582
; Patent No. 6110707
;  GENERAL INFORMATION:
;    APPLICANT:  Newgard, Christopher B.
;    APPLICANT:  Halban, Philippe A.
;    APPLICANT:  No. 6110707mington, Karl D.
;    APPLICANT:  Clark, Samuel A.
;    APPLICANT:  Thigpen, Anice E.
;    APPLICANT:  Quaade, Christian
;    APPLICANT:  Kruse, Fred
;    APPLICANT:  McGarry, Dennis
;    TITLE OF INVENTION:  RECOMBINANT EXPRESSION OF PROTEINS FROM
;    TITLE OF INVENTION:  SECRETORY CELL LINES
;    NUMBER OF SEQUENCES:  79
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Arnold, White & Durkee
;      STREET:  P.O. Box 4433
;      CITY:  Houston
;      STATE:  Texas
;      COUNTRY:  USA
;      ZIP:  77210
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.30
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/784,582
;      FILING DATE:  Concurrently Herewith
;      CLASSIFICATION:  435
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US 60/028,427
;      FILING DATE:  15-OCT-1996
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US 08/589,028
;      FILING DATE:  19-JAN-1996
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Highlander, Steven L.
;      REGISTRATION NUMBER:  37,642
;      REFERENCE/DOCKET NUMBER:  UTSD:514
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  512/418-3000
;      TELEFAX:  512/474-7577
;  INFORMATION FOR SEQ ID NO:  10:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  217 amino acids
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;       TYPE:  amino acid
;       STRANDEDNESS:
;       TOPOLOGY:  linear
US-08-784-582-10

  Query Match             97.9%;  Score 460;  DB 3;  Length 217;
  Best Local Similarity   98.9%;  Pred. No. 9.1e-51;
  Matches   90;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
              ||||||||||||||||||||||||||||||||||||||||||||||||||| |||||||
Db         27 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 86

Qy         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |||||||||||||||||||||||||||||||
Db         87 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 117


RESULT 9
US-08-785-271-10
; Sequence 10, Application US/08785271
; Patent No. 6194176
;  GENERAL INFORMATION:
;    APPLICANT:  Newgard, Christopher B.
;    APPLICANT:  Halban, Philippe A.
;    APPLICANT:  No. 6194176mington, Karl D.
;    APPLICANT:  Clark, Samuel A.
;    APPLICANT:  Thigpen, Anice E.
;    APPLICANT:  Quaade, Christian
;    APPLICANT:  Kruse, Fred
;    TITLE OF INVENTION:  RECOMBINANT EXPRESSION OF PROTEINS FROM
;    TITLE OF INVENTION:  SECRETORY CELL LINES
;    NUMBER OF SEQUENCES:  56
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Arnold, White & Durkee
;      STREET:  P.O. Box 4433
;      CITY:  Houston
;      STATE:  Texas
;      COUNTRY:  USA
;      ZIP:  77210
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.30
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/785,271
;      FILING DATE:  Concurrently Herewith
;      CLASSIFICATION:  435
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US 08/589,028
;      FILING DATE:  19-JAN-1996
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Highlander, Steven L.
;      REGISTRATION NUMBER:  37,642
;      REFERENCE/DOCKET NUMBER:  UTSD:513
;    TELECOMMUNICATION INFORMATION:
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; TELEPHONE: 512/418-3000
; TELEFAX: 512/474-7577
; INFORMATION FOR SEQ ID NO: 10:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 217 amino acids
; TYPE: amino acid
; STRANDEDNESS:
; TOPOLOGY: linear
US-08-785-271-10

Query Match 97.9%; Score 460; DB 3; Length 217;
Best Local Similarity 98.9%; Pred. No. 9.1e-51;
Matches 90; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

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Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
              ||||||||||||||||||||||||||||||||||||||||||||||||||| |||||||
Db         27 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 86

Qy         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |||||||||||||||||||||||||||||
Db         87 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 117
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RESULT 10
US-08-759-628-11
; Sequence 11, Application US/08759628
; Patent No. 6225446
; GENERAL INFORMATION:
; APPLICANT: Altmann, Scott W.
; APPLICANT: Rock, Fernando L.
; APPLICANT: Bazan, J. Fernando
; APPLICANT: Kastelein, Robert A.
; TITLE OF INVENTION: MUTATIONAL VARIANTS OF MAMMLIAN PROTEINS
; NUMBER OF SEQUENCES: 11
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: DNAX Research Institute
; STREET: 901 California Avenue
; CITY: Palo Alto
; STATE: California
; COUNTRY: USA
; ZIP: 94304-1104
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/759,628
; FILING DATE: 05-DEC-1996
; CLASSIFICATION: 435
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/008,574
; FILING DATE: 06-DEC-1995
; ATTORNEY/AGENT INFORMATION:
; NAME: Ching, Edwin P.
; REGISTRATION NUMBER: 34,090
; REFERENCE/DOCKET NUMBER: DX0552Q

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;     TELECOMMUNICATION INFORMATION:
;       TELEPHONE:  415-852-9196
;       TELEFAX:  415-496-1200
;   INFORMATION FOR SEQ ID NO:  11:
;     SEQUENCE CHARACTERISTICS:
;       LENGTH:  217 amino acids
;       TYPE:  amino acid
;       STRANDEDNESS:  single
;       TOPOLOGY:  linear
;     MOLECULE TYPE:  protein
;     FEATURE:
;       NAME/KEY:  Peptide
;       LOCATION:  32..53
;     FEATURE:
;       NAME/KEY:  Peptide
;       LOCATION:  94..115
;     FEATURE:
;       NAME/KEY:  Peptide
;       LOCATION:  133..153
;     FEATURE:
;       NAME/KEY:  Peptide
;       LOCATION:  192..210
;       OTHER INFORMATION:  /note= "The peptides above are
;       OTHER INFORMATION:  depicted in Figure 1"
US-08-759-628-11

  Query Match             97.9%;  Score 460;  DB 3;  Length 217;
  Best Local Similarity   98.9%;  Pred. No. 9.1e-51;
  Matches   90;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
              ||||||||||||||||||||||||||||||||||||||||||||||||||||| |||||||
Db         27 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 86

Qy         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |||||||||||||||||||||||||||||||
Db         87 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 117


RESULT 11
US-09-284-878-1
; Sequence 1, Application US/09284878
; Patent No. 6342375
; GENERAL INFORMATION:
;  APPLICANT:  Olazaran, Martha Guerrero
;  APPLICANT:  Saldana, Hugo Barrera
;  APPLICANT:  Salvado, Jose Maria Viader
;  TITLE OF INVENTION:  Genetically Modified Methylotrophic P. pastoris Yeast
for the
;  TITLE OF INVENTION:  Production and Secretion of the Human Growth Hormone
;  FILE REFERENCE:  1829.0010000
;  CURRENT APPLICATION NUMBER: US/09/284,878
;  CURRENT FILING DATE:  1999-07-21
;  PRIOR APPLICATION NUMBER:  PCT/MX97/00033
;  PRIOR FILING DATE:  1997-10-24
;  NUMBER OF SEQ ID NOS:  9
;  SOFTWARE:  PatentIn Ver. 2.1
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; SEQ ID NO 1
; LENGTH: 217
; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-284-878-1

Query Match 97.9%; Score 460; DB 4; Length 217;
Best Local Similarity 98.9%; Pred. No. 9.1e-51;
Matches 90; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

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Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
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Db         27 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 86

Qy         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |||||||||||||||||||||||||||||
Db         87 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 117
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RESULT 12
US-09-511-024A-1
; Sequence 1, Application US/09511024A
; Patent No. 6634554
; GENERAL INFORMATION:
; APPLICANT: Filikov, Anton
; APPLICANT: Dahiyat, Bassil I.
; TITLE OF INVENTION: NOVEL NUCLEIC ACIDS AND PROTEINS WITH GROWTH HORMONE
ACTIVITY
; FILE REFERENCE: A-67477-1/RFT/RMS/RMK
; CURRENT APPLICATION NUMBER: US/09/511,024A
; CURRENT FILING DATE: 2002-05-06
; PRIOR APPLICATION NUMBER: US 60/133,784
; PRIOR FILING DATE: 1999-05-12
; NUMBER OF SEQ ID NOS: 13
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 1
; LENGTH: 217
; TYPE: PRT
; ORGANISM: Homo sapiens
; FEATURE:
; NAME/KEY: SIGNAL
; LOCATION: (1)..(26)
; OTHER INFORMATION:
; FEATURE:
; NAME/KEY: mat_peptide
; LOCATION: (27)..()
; OTHER INFORMATION:
US-09-511-024A-1

Query Match 97.9%; Score 460; DB 4; Length 217;
Best Local Similarity 98.9%; Pred. No. 9.1e-51;
Matches 90; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

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Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
              ||||||||||||||||||||||||||||||||||||||||||||||||||| |||||||
Db         27 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 86
```

```
Qy          62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
               |||||||||||||||||||||||||||||||
Db          87 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 117


RESULT 13
US-09-424-620B-25
; Sequence 25, Application US/09424620B
; Patent No. 6391585
;   GENERAL INFORMATION:
;        APPLICANT: HANIL SYNTHETIC FIBER CO., LTD.
;                   JANG. Ki-Ryong
;                   MOON, Jae-Woong
;                   BAE, Cheon-Soon
;                   YANG, Doo-Suk
;                   LEE, Jee-Won
;                   SEONG, Baik-Lin
;        TITLE OF INVENTION: Process for preparing recombinant proteins using
highly
;                            efficient expression vector from Sacharomyces
cerevisiae
;        NUMBER OF SEQUENCES: 25
;        CORRESPONDENCE ADDRESS:
;             ADDRESSEE: BACHMAN & LAPOINTE, P.C.
;             STREET: Suite 1201, 900 Chapel Street
;             CITY: New Haven
;             STATE: Connecticut
;             COUNTRY: U.S.A.
;             ZIP: 06510-2802
;        COMPUTER READABLE FORM:
;             MEDIUM TYPE: Diskette, 3.5 inch, 1.44 Mb storage
;             COMPUTER: IBM
;             OPERATING SYSTEM: WINDOWS 95/98
;             SOFTWARE: MS WORD
;        CURRENT APPLICATION DATA:
;             APPLICATION NUMBER: US/09/424,620B
;             FILING DATE: 24-No. 6391585-1999
;   INFORMATION FOR SEQ ID NO: 25:
;        SEQUENCE CHARACTERISTICS:
;             LENGTH: 241 amino acids
;             TYPE: amino acid
;             TOPOLOGY: linear
;        MOLECULE TYPE: PROTEIN
;        SEQUENCE DESCRIPTION: SEQ ID NO: 25:
US-09-424-620B-25

  Query Match             97.9%;  Score 460;  DB 4;  Length 241;
  Best Local Similarity   98.9%;  Pred. No. 1.1e-50;
  Matches   90;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy           2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
               |||||||||||||||||||||||||||||||||||||||||||||||||||||||| |||||||
Db          51 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 110

Qy          62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
               |||||||||||||||||||||||||||||||
Db         111 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 141
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RESULT 14
US-09-280-030-66
; Sequence 66, Application US/09280030A
; Patent No. 6506595
; GENERAL INFORMATION:
; APPLICANT: Sato, Seiji
; APPLICANT: Higashikuni, Naohiko
; APPLICANT: Kudo, Toshiyuki
; APPLICANT: Kondo, Masaaki
; TITLE OF INVENTION: DNAS ENCODING NEW FUSION PROTEINS AND PROCESSES FOR
; TITLE OF INVENTION: PREPARING USEFUL POLYPEPTIDES THROUGH EXPRESSION OF THE
; TITLE OF INVENTION: DNAS
; FILE REFERENCE: 382.1026
; CURRENT APPLICATION NUMBER: US/09/280,030A
; CURRENT FILING DATE: 1999-03-26
; EARLIER APPLICATION NUMBER: JP10-87339/1998
; EARLIER FILING DATE: 1998-03-31
; NUMBER OF SEQ ID NOS: 66
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 66
; LENGTH: 245
; TYPE: PRT
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Description of Artificial Sequence: Designated is
; OTHER INFORMATION: an amino acid sequence of MWPsp-MWPmp20-TEV-G-GH
US-09-280-030-66

  Query Match 97.9%; Score 460; DB 4; Length 245;
  Best Local Similarity 98.9%; Pred. No. 1.1e-50;
  Matches 90; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

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Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
              ||||||||||||||||||||||||||||||||||||||||||||||||||| |||||||
Db         55 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 114

Qy         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
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Db        115 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 145
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RESULT 15
US-08-784-582-71
; Sequence 71, Application US/08784582
; Patent No. 6110707
; GENERAL INFORMATION:
; APPLICANT: Newgard, Christopher B.
; APPLICANT: Halban, Philippe A.
; APPLICANT: No. 6110707mington, Karl D.
; APPLICANT: Clark, Samuel A.
; APPLICANT: Thigpen, Anice E.
; APPLICANT: Quaade, Christian
; APPLICANT: Kruse, Fred
; APPLICANT: McGarry, Dennis
; TITLE OF INVENTION: RECOMBINANT EXPRESSION OF PROTEINS FROM

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;    TITLE OF INVENTION:  SECRETORY CELL LINES
;    NUMBER OF SEQUENCES:  79
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Arnold, White & Durkee
;      STREET:  P.O. Box 4433
;      CITY:  Houston
;      STATE:  Texas
;      COUNTRY:  USA
;      ZIP:  77210
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.30
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/784,582
;      FILING DATE:  Concurrently Herewith
;      CLASSIFICATION:  435
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US 60/028,427
;      FILING DATE:  15-OCT-1996
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US 08/589,028
;      FILING DATE:  19-JAN-1996
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Highlander, Steven L.
;      REGISTRATION NUMBER:  37,642
;      REFERENCE/DOCKET NUMBER:  UTSD:514
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  512/418-3000
;      TELEFAX:  512/474-7577
;  INFORMATION FOR SEQ ID NO:  71:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  274 amino acids
;      TYPE:  amino acid
;      STRANDEDNESS:
;      TOPOLOGY:  linear
US-08-784-582-71

  Query Match             97.9%;  Score 460;  DB 3;  Length 274;
  Best Local Similarity   98.9%;  Pred. No. 1.3e-50;
  Matches   90;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
              ||||||||||||||||||||||||||||||||||||||||||||||||||||| |||||||
Db         27 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 86

Qy         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |||||||||||||||||||||||||||||||
Db         87 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 117


Search completed: July 15, 2004, 16:42:30
Job time : 13.903 secs
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GenCore version 5.1.6

OM protein - protein search, using sw model

Run on: July 15, 2004, 16:29:19 ; Search time 10.2985 Seconds
(without alignments)
859.311 Million cell updates/sec

Title: US-09-423-100-2
Perfect score: 470
Sequence: 1 MFPTIPLSRLFDNAMLRAHR.....NLELLRISLLLIQSWLEPVQ 92

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 283366 seqs, 96191526 residues

Total number of hits satisfying chosen parameters: 283366

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : PIR_78:*
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	460	97.9	217	1	STHU	somatotropin 1 pre
2	460	97.9	217	2	I67410	somatotropin - rhe
3	422	89.8	217	1	STHUV	somatotropin 2 pre
4	422	89.8	256	1	STHUV2	somatotropin 2 pre
5	402	85.5	217	2	I67411	somatotropin - rhe
6	397	84.5	217	2	I67409	chorionic somatoma
7	396	84.3	212	2	I67408	chorionic somatoma
8	396	84.3	217	2	I53267	chorionic somatoma
9	381	81.1	217	1	LCHUC	choriomammotropin
10	381	81.1	217	2	E32435	choriomammotropin
11	359.5	76.5	215	2	A26449	choriomammotropin
12	310.5	66.1	216	2	B49159	somatotropin - gol
13	307.5	65.4	190	2	PN0140	somatotropin - sei

14	304.5	64.8	216	1	STMS	somatotropin precu
15	302.5	64.4	190	1	STHO	somatotropin - hor
16	302.5	64.4	216	1	STRT	somatotropin precu
17	302.5	64.4	216	2	S49483	somatotropin precu
18	301.5	64.1	190	2	JK0219	somatotropin - Afr
19	301.5	64.1	216	1	STPG	somatotropin precu
20	301.5	64.1	216	2	I46145	somatotropin precu
21	301.5	64.1	216	2	JC4632	somatotropin precu
22	299.5	63.7	216	2	A37782	somatotropin precu
23	297.5	63.3	190	1	A61584	somatotropin - alp
24	295.5	62.9	190	2	JS0429	somatotropin - Arc
25	289.5	61.6	217	1	STBO	somatotropin precu
26	289.5	61.6	217	1	STSH	somatotropin precu
27	289.5	61.6	217	1	STGT	somatotropin precu
28	289.5	61.6	217	2	S32682	somatotropin - dom
29	278.5	59.3	216	2	JC1514	somatotropin precu
30	275.5	58.6	216	2	A60509	somatotropin precu
31	268.5	57.1	191	2	A60625	somatotropin - gre
32	261	55.5	216	2	S04929	somatotropin precu
33	257.5	54.8	190	2	S21750	somatotropin - Rus
34	247.5	52.7	190	2	A56816	somatotropin - bul
35	238.5	50.7	215	2	I51188	somatotropin - bul
36	237.5	50.5	215	2	JS0037	somatotropin precu
37	234	49.8	199	2	B32435	choriomammotropin-
38	233.5	49.7	195	2	I51250	somatotropin - bow
39	225.5	48.0	183	2	A60623	somatotropin - blu
40	206	43.8	87	4	I67761	EST/beta-Gal mutan
41	174.5	37.1	209	2	JT0483	somatotropin I pre
42	171	36.4	163	2	JN0387	somatotropin - sei
43	165.5	35.2	190	2	JC5682	somatotropin - com
44	165.5	35.2	210	2	I50763	somatotropin - nob
45	165.5	35.2	210	2	S38351	somatotropin - sil

ALIGNMENTS

RESULT 1
STHU
somatotropin 1 precursor [validated] - human
N;Alternate names: growth hormone 1; hGH-N; pituitary somatotropin
N;Contains: growth hormone 5K peptide; somatotropin 1, long form; somatotropin 1, short form
C;Species: Homo sapiens (man)
C;Date: 24-Apr-1984 #sequence_revision 10-Feb-1995 #text_change 08-Dec-2000
C;Accession: A93731; A32435; A93694; A94247; A90051; A93397; A93778; A91764; A90217; A92311; A61466; S09685; I84549; A01510
R;DeNoto, F.M.; Moore, D.D.; Goodman, H.M.
Nucleic Acids Res. 9, 3719-3730, 1981
A;Title: Human growth hormone DNA sequence and mRNA structure: possible alternative splicing.
A;Reference number: A93731; MUID:82014939; PMID:6269091
A;Accession: A93731
A;Molecule type: DNA
A;Residues: 1-217 <DEN>
A;Cross-references: GB:V00520

A;Note: the 20K short form somatotropin lacks residues 58-72 (32-46 in the active hormone) as the result of splicing at the alternate junction of the second intron during mRNA processing
R;Chen, E.Y.; Liao, Y.C.; Smith, D.H.; Barrera-Saldana, H.A.; Gelinas, R.E.; Seeburg, P.H.
Genomics 4, 479-497, 1989
A;Title: The human growth hormone locus: nucleotide sequence, biology, and evolution.
A;Reference number: A32435; MUID:89307277; PMID:2744760
A;Accession: A32435
A;Molecule type: DNA
A;Residues: 1-217 <CHE>
A;Cross-references: GB:J03071; NID:g183148; PIDN:AAA52549.1; PID:g183149
R;Roskam, W.; Rougeon, F.
Nucleic Acids Res. 7, 305-320, 1979
A;Title: Molecular cloning and nucleotide sequence of the human growth hormone structural gene.
A;Reference number: A93694; MUID:80034477; PMID:386281
A;Accession: A93694
A;Molecule type: mRNA
A;Residues: 1-217 <ROS>
A;Cross-references: GB:V00519
A;Note: 35-Pro was also found
R;Martial, J.A.; Hallewell, R.A.; Baxter, J.D.; Goodman, H.M.
Science 205, 602-607, 1979
A;Title: Human growth hormone: complementary DNA cloning and expression in bacteria.
A;Reference number: A94247; MUID:79203293; PMID:377496
A;Accession: A94247
A;Molecule type: mRNA
A;Residues: 1-217 <MAR>
R;Li, C.H.; Dixon, J.S.; Liu, W.K.
Arch. Biochem. Biophys. 133, 70-91, 1969
A;Title: Human pituitary growth hormone. XIX. The primary structure of the hormone.
A;Reference number: A90048; MUID:69289202; PMID:5810834
A;Contents: annotation
R;Li, C.H.; Dixon, J.S.
Arch. Biochem. Biophys. 146, 233-236, 1971
A;Title: Human pituitary growth hormone. XXXII. The primary structure of the hormone: revision.
A;Reference number: A90051; MUID:72143935; PMID:5144027
A;Accession: A90051
A;Molecule type: protein
A;Residues: 27-94;96-217 <LIC>
R;Niall, H.D.
Nature New Biol. 230, 90-91, 1971
A;Title: Revised primary structure for human growth hormone.
A;Reference number: A93397; MUID:71139765; PMID:5279046
A;Accession: A93397
A;Molecule type: protein
A;Residues: 27-51 <NIA>
R;Niall, H.D.; Hogan, M.L.; Sauer, R.; Rosenblum, I.Y.; Greenwood, F.C.
Proc. Natl. Acad. Sci. U.S.A. 68, 866-869, 1971
A;Title: Sequences of pituitary and placental lactogenic and growth hormones: evolution from a primordial peptide by gene reduplication.
A;Reference number: A93778; MUID:71153968; PMID:5279528

A;Accession: A93778
A;Molecule type: protein
A;Residues: 119-120;157-159 <NI2>
R;Niall, H.D.
in Prolactin and Carcinogenesis, Proc. Fourth Tenovus Workshop Prolactin, Griffiths, K., ed., pp.13-20, Alpha Omega Alpha Press, Cardiff, Wales, 1972
A;Title: The chemistry of the human lactogenic hormones.
A;Reference number: A94427
A;Contents: annotation; somatotropin revision
R;Bewley, T.A.; Dixon, J.S.; Li, C.H.
Int. J. Pept. Protein Res. 4, 281-287, 1972
A;Title: Sequence comparison of human pituitary growth hormone, human chorionic somatomammotropin, and ovine pituitary growth and lactogenic hormones.
A;Reference number: A91764; MUID:73092028; PMID:4675454
A;Accession: A91764
A;Molecule type: protein
A;Residues: 27-217 <BEW>
R;Lewis, U.J.; Bonewald, L.F.; Lewis, L.J.
Biochem. Biophys. Res. Commun. 92, 511-516, 1980
A;Title: The 20,000-dalton variant of human growth hormone: location of the amino acid deletions.
A;Reference number: A90217; MUID:80130196; PMID:7356479
A;Contents: somatotropin, 20K short variant
A;Accession: A90217
A;Molecule type: protein
A;Residues: 46-57;73-80 <LEW>
R;Chapman, G.E.; Rogers, K.M.; Brittain, T.; Bradshaw, R.A.; Bates, O.J.; Turner, C.; Cary, P.D.; Crane-Robinson, C.
J. Biol. Chem. 256, 2395-2401, 1981
A;Title: The 20,000 molecular weight variant of human growth hormone. Preparation and some physical and chemical properties.
A;Reference number: A92311; MUID:81117361; PMID:7462247
A;Contents: somatotropin, 20K short variant
A;Accession: A92311
A;Molecule type: protein
A;Residues: 27-57;73-79 <CHA>
R;Singh, R.N.P.; Seavey, B.K.; Lewis, L.J.; Lewis, U.J.
J. Protein Chem. 2, 425-436, 1983
A;Title: Human growth hormone peptide 1-43: isolation from pituitary glands.
A;Reference number: A61466
A;Accession: A61466
A;Molecule type: protein
A;Residues: 27-69 <SIN>
A;Note: growth hormone 5K peptide has insulin potentiating activity; its physiological production is uncertain
R;Robson, V.M.J.; Rae, I.D.; NG, F.
Biol. Chem. Hoppe-Seyler 371, 423-431, 1990
A;Title: Identification of the aspartimide structure in a previously-reported peptide.
A;Reference number: S09685; MUID:90334745; PMID:2378679
A;Accession: S09685
A;Molecule type: protein
A;Residues: 27-34,'L',36-47 <ROB>
R;de Vos, A.M.; Ultsch, M.; Kossiakoff, A.A.
Science 255, 306-312, 1992
A;Title: Human growth hormone and extracellular domain of its receptor: crystal structure of the complex.

A;Reference number: A41728; MUID:92196577; PMID:1549776
A;Contents: annotation; X-ray crystallography, 2.8 angstroms
A;Note: the structure of the complex with growth hormone receptor is described
R;Gray, G.L.; Baldridge, J.S.; McKeown, K.S.; Heyneker, H.L.; Chang, C.N.
Gene 39, 247-254, 1985
A;Title: Periplasmic production of correctly processed human growth hormone in
Escherichia coli: natural and bacterial signal sequences are interchangeable.
A;Reference number: I41126; MUID:86137393; PMID:3912261
A;Accession: I84549
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-26 <RES>
A;Cross-references: GB:M14398; NID:g183158; PIDN:AAA52554.1; PID:g183159
C;Comment: The gene for this hormone is transcribed only in somatotrophic cells
of the anterior pituitary.
C;Comment: About 90% of somatotropin is the 22K long form.
C;Genetics:
A;Gene: GDB:GH1
A;Cross-references: GDB:119982; OMIM:139250
A;Map position: 17q23.1-17q23.3
A;Introns: 4/1; 57/3; 97/3; 152/3
C;Superfamily: prolactin
C;Keywords: alternative splicing; hormone; pituitary
F;1-26/Domain: signal sequence #status predicted <SIG>
F;27-217/Product: somatotropin 1, long form #status experimental <SOL>
F;27-69/Product: growth hormone 5K peptide #status experimental <5KP>
F;27-57,73-217/Product: somatotropin 1, short form #status experimental <SOS>
F;79-191,208-215/Disulfide bonds: #status experimental

  Query Match 97.9%; Score 460; DB 1; Length 217;
  Best Local Similarity 98.9%; Pred. No. 4.4e-42;
  Matches 90; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

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Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
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Db         27 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 86

Qy         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |||||||||||||||||||||||||||||||
Db         87 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 117
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RESULT 2
I67410
somatotropin - rhesus macaque
N;Alternate names: growth hormone
C;Species: Macaca mulatta (rhesus macaque)
C;Date: 31-May-1996 #sequence_revision 31-May-1996 #text_change 16-Jul-1999
C;Accession: I67410; A05094
R;Golos, T.G.; Durning, M.; Fisher, J.M.; Fowler, P.D.
Endocrinology 133, 1744-1752, 1993
A;Title: Cloning of four growth hormone/chorionic somatomammotropin-related
complementary deoxyribonucleic acids differentially expressed during pregnancy
in the rhesus monkey placenta.
A;Reference number: I53267; MUID:94008724; PMID:8404617
A;Accession: I67410
A;Status: translated from GB/EMBL/DDBJ

A;Molecule type: mRNA
A;Residues: 1-217 <RES>
A;Cross-references: GB:L16556; NID:g293114; PIDN:AAA18842.1; PID:g293115
R;Li, C.H.; Chung, D.; Lahm, H.W.; Stein, S.
Arch. Biochem. Biophys. 245, 287-291, 1986
A;Title: The primary structure of monkey pituitary growth hormone.
A;Reference number: A05094; MUID:86129460; PMID:3080959
A;Accession: A05094
A;Molecule type: protein
A;Residues: 27-99,'Q',101-178,'D',180-217 <LIC>
A;Note: the monkey species is not identified in the reference
R;Raben, M.S.
Science 125, 883-884, 1957
A;Title: Preparation of growth hormone from pituitaries of man and monkey.
A;Reference number: A44774
A;Contents: annotation; identification of source organism
C;Superfamily: prolactin

Query Match 97.9%; Score 460; DB 2; Length 217;
Best Local Similarity 98.9%; Pred. No. 4.4e-42;
Matches 90; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

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Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
              ||||||||||||||||||||||||||||||||||||||||||||||||||||| |||||||
Db         27 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 86

Qy         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |||||||||||||||||||||||||||||||
Db         87 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 117
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RESULT 3
STHUV
somatotropin 2 precursor - human
N;Alternate names: growth hormone 2; growth hormone variant; hGH-V; placental somatotropin
N;Contains: somatotropin 2, long splice form; somatotropin 2, short splice form
C;Species: Homo sapiens (man)
C;Date: 17-Dec-1982 #sequence_revision 10-Feb-1995 #text_change 21-Jul-2000
C;Accession: D32435; B28072; A01511; I52104; A60711
R;Chen, E.Y.; Liao, Y.C.; Smith, D.H.; Barrera-Saldana, H.A.; Gelinas, R.E.; Seeburg, P.H.
Genomics 4, 479-497, 1989
A;Title: The human growth hormone locus: nucleotide sequence, biology, and evolution.
A;Reference number: A32435; MUID:89307277; PMID:2744760
A;Accession: D32435
A;Molecule type: DNA
A;Residues: 1-217 <CHE>
A;Cross-references: GB:J03071; NID:g183148; PIDN:AAA52552.1; PID:g183152
R;Cooke, N.E.; Ray, J.; Emery, J.G.; Liebhaber, S.A.
J. Biol. Chem. 263, 9001-9006, 1988
A;Title: Two distinct species of human growth hormone-variant mRNA in the human placenta predict the expression of novel growth hormone proteins.
A;Reference number: A92725; MUID:88243769; PMID:3379057
A;Accession: B28072
A;Molecule type: mRNA

A;Residues: 1-217 <COO>
R;Seeburg, P.H.
DNA 1, 239-249, 1982
A;Title: The human growth hormone gene family: nucleotide sequences show recent divergence and predict a new polypeptide hormone.
A;Reference number: A01511; MUID:83182010; PMID:7169009
A;Accession: A01511
A;Molecule type: DNA
A;Residues: 1-34,'P',36-217 <SEE>
R;Igout, A.; Scippo, M.L.; Frankenne, F.; Hennen, G.
Arch. Int. Physiol. Biochim. 96, 63-67, 1988
A;Title: Cloning and nucleotide sequence of placental hGH-V cDNA.
A;Reference number: I52104; MUID:89024984; PMID:2460050
A;Accession: I52104
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-217 <IGO>
A;Cross-references: GB:M38451; NID:g183179; PIDN:AAA35891.1; PID:g183180
R;Frankenne, F.; Scippo, M.L.; Van Beeumen, J.; Igout, A.; Hennen, G.
J. Clin. Endocrinol. Metab. 71, 15-18, 1990
A;Title: Identification of placental human growth hormone as the growth hormone-V gene expression product.
A;Reference number: A60711; MUID:90317018; PMID:2196278
A;Accession: A60711
A;Molecule type: protein
A;Residues: 27-44;46-57 <FRA>
A;Experimental source: tissue placenta
A;Note: partial glycosylation was demonstrated by lectin binding
C;Comment: This gene is expressed by the placenta.
C;Genetics:
A;Gene: GDB:GH2
A;Cross-references: GDB:119983; OMIM:139240
A;Map position: 17q22-17q24
A;Introns: 4/1; 57/3; 97/3; 152/3
C;Superfamily: prolactin
C;Keywords: alternative splicing; glycoprotein; hormone; placenta
F;1-26/Domain: signal sequence #status predicted <SIG>
F;27-217/Product: somatotropin 2, long splice form #status predicted <SOL>
F;27-57,73-217/Product: somatotropin 2, short splice form #status predicted <SOS>
F;79-191,208-215/Disulfide bonds: #status predicted
F;166/Binding site: carbohydrate (Asn) (covalent) #status predicted

Query Match 89.8%; Score 422; DB 1; Length 217;
Best Local Similarity 92.3%; Pred. No. 5.5e-38;
Matches 84; Conservative 3; Mismatches 4; Indels 0; Gaps 0;

```
Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
              |||||||||||||||| ||:|||:|||||||||| |||||||||||||| |||||||
Db         27 FPTIPLSRLFDNAMLRARRLYQLAYDTYQEFEEAYILKEQKYSFLQNPQTSLCFSESIPT 86

Qy         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |||| :|||||||||||||||||||||||||
Db         87 PSNRVKTQQKSNLELLRISLLLIQSWLEPVQ 117
```

RESULT 4

STHUV2
somatotropin 2 precursor, splice form 2 - human
N;Alternate names: growth hormone variant-2; placental somatotropin form 2
C;Species: Homo sapiens (man)
C;Date: 30-Sep-1989 #sequence_revision 10-Feb-1995 #text_change 02-Sep-1997
C;Accession: A28072
R;Cooke, N.E.; Ray, J.; Emery, J.G.; Liebhaber, S.A.
J. Biol. Chem. 263, 9001-9006, 1988
A;Title: Two distinct species of human growth hormone-variant mRNA in the human placenta predict the expression of novel growth hormone proteins.
A;Reference number: A92725; MUID:88243769; PMID:3379057
A;Accession: A28072
A;Molecule type: mRNA
A;Residues: 1-256 <COO>
A;Note: an alternative splice junction for intron 4 is used
C;Genetics:
A;Gene: GDB:GH2
A;Cross-references: GDB:119983; OMIM:139240
A;Map position: 17q22-17q24
A;Introns: 4/1; 57/3; 97/3; 152/3
C;Superfamily: prolactin
C;Keywords: alternative splicing; hormone; placenta
F;1-26/Domain: signal sequence #status predicted <SIG>
F;27-256/Product: somatotropin 2 splice form 2 #status predicted <MAT>

Query Match 89.8%; Score 422; DB 1; Length 256;
Best Local Similarity 92.3%; Pred. No. 6.7e-38;
Matches 84; Conservative 3; Mismatches 4; Indels 0; Gaps 0;

```
Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
              |||||||||||||||| ||:|||:|||||||||| |||||||||||||| |||||||
Db         27 FPTIPLSRLFDNAMLRARRLYQLAYDTYQEFEEAYILKEQKYSFLQNPQTSLCFSESIPT 86

Qy         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |||| :|||||||||||||||||||||||||
Db         87 PSNRVKTQQKSNLELLRISLLLIQSWLEPVQ 117
```

RESULT 5
I67411
somatotropin - rhesus macaque
N;Alternate names: growth hormone
C;Species: Macaca mulatta (rhesus macaque)
C;Date: 31-May-1996 #sequence_revision 31-May-1996 #text_change 16-Jul-1999
C;Accession: I67411
R;Golos, T.G.; Durning, M.; Fisher, J.M.; Fowler, P.D.
Endocrinology 133, 1744-1752, 1993
A;Title: Cloning of four growth hormone/chorionic somatomammotropin-related complementary deoxyribonucleic acids differentially expressed during pregnancy in the rhesus monkey placenta.
A;Reference number: I53267; MUID:94008724; PMID:8404617
A;Accession: I67411
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-217 <RES>
A;Cross-references: GB:L16555; NID:g293116; PIDN:AAA20180.1; PID:g293117
C;Superfamily: prolactin

```
  Query Match             85.5%;  Score 402;  DB 2;  Length 217;
  Best Local Similarity   85.7%;  Pred. No. 7.8e-36;
  Matches   78;  Conservative    6;  Mismatches    7;  Indels    0;  Gaps    0;

Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
              ||||||| ||: |: ||| ||:|||||| :|||||||||||||||:|||||| |||||||
Db         27 FPTIPLSWLFNTAVFRAHHLHKLAFDTYPKFEEAYIPKEQKYSFLRNPQTSLCFSESIPT 86

Qy         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |||:||||||||||||| ||||||||||||||
Db         87 PSNKEETQQKSNLELLHISLLLIQSWLEPVQ 117


RESULT 6
I67409
chorionic somatomammotropin-3 - rhesus macaque
C;Species: Macaca mulatta (rhesus macaque)
C;Date: 31-May-1996 #sequence_revision 31-May-1996 #text_change 16-Jul-1999
C;Accession: I67409
R;Golos, T.G.; Durning, M.; Fisher, J.M.; Fowler, P.D.
Endocrinology 133, 1744-1752, 1993
A;Title: Cloning of four growth hormone/chorionic somatomammotropin-related
complementary deoxyribonucleic acids differentially expressed during pregnancy
in the rhesus monkey placenta.
A;Reference number: I53267; MUID:94008724; PMID:8404617
A;Accession: I67409
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-217 <RES>
A;Cross-references: GB:L16554; NID:g293112; PIDN:AAA18841.1; PID:g293113
C;Superfamily: prolactin

  Query Match             84.5%;  Score 397;  DB 2;  Length 217;
  Best Local Similarity   83.3%;  Pred. No. 2.7e-35;
  Matches   75;  Conservative    8;  Mismatches    7;  Indels    0;  Gaps    0;

Qy          3 PTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPTP 62
              |::|||||||| |::|||||||||||||||: |||||:|:| : ||| |  ||||||||
Db         28 PSVPLSRLFDNIMMQAHRLHQLAFDTYQEFEKTYIPKEKKHSLMGNPQASFCFSESIPTP 87

Qy         63 SNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |||||||||||||||||||||||||||||
Db         88 SNREETQQKSNLELLRISLLLIQSWLEPVQ 117


RESULT 7
I67408
chorionic somatomammotropin-2 - rhesus macaque (fragment)
C;Species: Macaca mulatta (rhesus macaque)
C;Date: 31-May-1996 #sequence_revision 31-May-1996 #text_change 16-Jul-1999
C;Accession: I67408
R;Golos, T.G.; Durning, M.; Fisher, J.M.; Fowler, P.D.
Endocrinology 133, 1744-1752, 1993
A;Title: Cloning of four growth hormone/chorionic somatomammotropin-related
complementary deoxyribonucleic acids differentially expressed during pregnancy
in the rhesus monkey placenta.
```

A;Reference number: I53267; MUID:94008724; PMID:8404617
A;Accession: I67408
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-212 <RES>
A;Cross-references: GB:L16553; NID:g293110; PIDN:AAA18840.1; PID:g293111
C;Superfamily: prolactin

```
  Query Match             84.3%;  Score 396;  DB 2;  Length 212;
  Best Local Similarity   82.2%;  Pred. No. 3.3e-35;
  Matches   74;  Conservative   11;  Mismatches    5;  Indels    0;  Gaps    0;

Qy          3 PTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPTP 62
              |::|||||||:||::||||||||||||||||||||||||:|:| ::||| |  |::|||||
Db         23 PSVPLSRLFDHAMIQAHRLHQLAFDTYQEFEEAYIPKEKKHSLMENPQASFCFADSIPTP 82

Qy         63 SNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              || |||||||||||||||||||||||||||
Db         83 SNLEETQQKSNLELLRISLLLIQSWLEPVQ 112
```

RESULT 8
I53267
chorionic somatomammotropin-1 - rhesus macaque
C;Species: Macaca mulatta (rhesus macaque)
C;Date: 31-May-1996 #sequence_revision 31-May-1996 #text_change 16-Jul-1999
C;Accession: I53267
R;Golos, T.G.; Durning, M.; Fisher, J.M.; Fowler, P.D.
Endocrinology 133, 1744-1752, 1993
A;Title: Cloning of four growth hormone/chorionic somatomammotropin-related
complementary deoxyribonucleic acids differentially expressed during pregnancy
in the rhesus monkey placenta.
A;Reference number: I53267; MUID:94008724; PMID:8404617
A;Accession: I53267
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-217 <RES>
A;Cross-references: GB:L16552; NID:g293108; PIDN:AAA18839.1; PID:g293109
C;Superfamily: prolactin

```
  Query Match             84.3%;  Score 396;  DB 2;  Length 217;
  Best Local Similarity   82.2%;  Pred. No. 3.4e-35;
  Matches   74;  Conservative   11;  Mismatches    5;  Indels    0;  Gaps    0;

Qy          3 PTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPTP 62
              |::|||||||:||::||||||||||||||||||||||||:|:| ::||| |  |::|||||
Db         28 PSVPLSRLFDHAMIQAHRLHQLAFDTYQEFEEAYIPKEKKHSLMENPQASFCFADSIPTP 87

Qy         63 SNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              || |||||||||||||||||||||||||||
Db         88 SNLEETQQKSNLELLRISLLLIQSWLEPVQ 117
```

RESULT 9
LCHUC
choriomammotropin A precursor [validated] - human
N;Alternate names: chorionic somatomammotropin 1; placental lactogen

C;Species: Homo sapiens (man)
C;Date: 23-Oct-1981 #sequence_revision 23-Oct-1981 #text_change 08-Dec-2000
C;Accession: C32435; A94422; I52342; A93833; A93192; A90054; A94427; A61283; I55229; I59658; A01512
R;Chen, E.Y.; Liao, Y.C.; Smith, D.H.; Barrera-Saldana, H.A.; Gelinas, R.E.; Seeburg, P.H.
Genomics 4, 479-497, 1989
A;Title: The human growth hormone locus: nucleotide sequence, biology, and evolution.
A;Reference number: A32435; MUID:89307277; PMID:2744760
A;Accession: C32435
A;Molecule type: DNA
A;Residues: 1-217 <CHE>
A;Cross-references: GB:J03071; NID:g183148; PIDN:AAA52551.1; PID:g183151
R;Goodman, H.M.; DeNoto, F.; Fiddes, J.C.; Hallewell, R.A.; Page, G.S.; Smith, S.; Tischer, E.
in Mobilization and Reassembly of Genetic Information, Scott, W.A., Werner, R., Joseph, D.R., and Schultz, J., eds., pp.155-179, Academic Press, New York, 1980
A;Reference number: A94422
A;Accession: A94422
A;Molecule type: mRNA
A;Residues: 1-217 <GOO>
R;Tanaka, M.; Masuda, N.; Watahiki, M.; Yamakawa, M.; Shimizu, K.; Nagai, J.; Nakashima, K.
Biochem. Int. 16, 287-292, 1988
A;Title: cDNA cloning of human chorionic somatomammotropin-1 mRNA whose transcription was initiated at the 5' region of the TATA box.
A;Reference number: I52342; MUID:88209096; PMID:2835050
A;Accession: I52342
A;Status: translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-3 <TAN>
A;Cross-references: GB:M35419; NID:g506822
R;Sherwood, L.M.; Burstein, Y.; Schechter, I.
Proc. Natl. Acad. Sci. U.S.A. 76, 3819-3823, 1979
A;Title: Primary structure of the NH-2-terminal extra piece of the precursor to human placental lactogen.
A;Reference number: A93833; MUID:80034970; PMID:291043
A;Accession: A93833
A;Molecule type: protein
A;Residues: 1,3-26 <SHE>
A;Experimental source: placenta
R;Shine, J.; Seeburg, P.H.; Martial, J.A.; Baxter, J.D.; Goodman, H.M.
Nature 270, 494-499, 1977
A;Title: Construction and analysis of recombinant DNA for human chorionic somatomammotropin.
A;Reference number: A93192; MUID:78071761; PMID:593368
A;Accession: A93192
A;Molecule type: DNA
A;Residues: 50-217 <SHI>
A;Experimental source: placenta
R;Li, C.H.; Dixon, J.S.; Chung, D.
Arch. Biochem. Biophys. 155, 95-110, 1973
A;Title: Amino acid sequence of human chorionic somatomammotropin.
A;Reference number: A90054; MUID:73201971; PMID:4712450
A;Accession: A90054
A;Molecule type: protein

A;Residues: 27-217 <LIC>
A;Experimental source: placenta
R;Niall, H.D.
in Prolactin and Carcinogenesis, Proc. Fourth Tenovus Workshop Prolactin, Griffiths, K., ed., pp.13-20, Alpha Omega Alpha Press, Cardiff, Wales, 1972
A;Title: The chemistry of the human lactogenic hormones.
A;Reference number: A94427
A;Accession: A94427
A;Molecule type: protein
A;Residues: 27-217 <NIA>
A;Experimental source: placenta
R;Nic A Bhaird, N.; Tipton, K.F.
Biochem. Soc. Trans. 19, 20S, 1991
A;Title: Catechol-O-methyltransferase from human placenta: purification and some properties.
A;Reference number: A61283; MUID:91244006; PMID:2037148
A;Accession: A61283
A;Molecule type: protein
A;Residues: 27-46 <NIC>
A;Note: choriomammotropin apparently copurified with placental catechol-O-methyltransferase
R;Sherwood, L.M.; Handwerger, S.; McLaurin, W.D.; Lanner, M.
Nature New Biol. 233, 59-61, 1971
A;Title: Amino-acid sequence of human placental lactogen.
A;Reference number: A93401; MUID:72016313; PMID:5286363
A;Contents: annotation
R;Sherwood, L.M.; Handwerger, S.; McLaurin, W.D.; Lanner, M.
Nature New Biol. 235, 64, 1972
A;Reference number: A93405
A;Contents: annotation
R;Schneider, A.B.; Kowalski, K.; Russell, J.; Sherwood, L.M.
J. Biol. Chem. 254, 3782-3787, 1979
A;Title: Identification of the interchain disulfide bonds of dimeric human placental lactogen.
A;Reference number: A92251; MUID:79173081; PMID:438159
A;Contents: annotation; dimeric disulfide bonds
R;Selby, M.J.; Barta, A.; Baxter, J.D.; Bell, G.I.; Eberhardt, N.L.
J. Biol. Chem. 259, 13131-13138, 1984
A;Title: Analysis of a major human chorionic somatomammotropin gene. Evidence for two functional promoter elements.
A;Reference number: I55229; MUID:85030426; PMID:6208192
A;Accession: I55229
A;Status: translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-217 <RES>
A;Cross-references: GB:K02401; NID:g181120; PIDN:AAA52115.1; PID:g181121
R;Seeburg, P.H.; Shine, J.; Martial, J.A.; Ullrich, A.; Goodman, H.
Trans. Assoc. Am. Physicians 90, 109-116, 1977
A;Title: Nucleotide sequence of a human gene coding for a polypeptide hormone.
A;Reference number: I59658; MUID:78160787; PMID:611657
A;Accession: I59658
A;Status: translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 160-217 <RE2>
A;Cross-references: GB:M25118; NID:g181124; PIDN:AAA35721.1; PID:g181125
C;Genetics:
A;Gene: GDB:CSH1

A;Cross-references: GDB:119084; OMIM:150200
A;Map position: 17q22-17q24
A;Introns: 4/1; 57/3; 97/3; 152/3
C;Superfamily: prolactin
C;Keywords: hormone; placenta
F;1-26/Domain: signal sequence #status experimental <SIG>
F;27-217/Product: choriomammotropin A #status experimental <MAT>
F;79-191/Disulfide bonds: #status experimental
F;208-215/Disulfide bonds: (in monomeric form) #status experimental
F;208/Disulfide bonds: interchain (to 215 in dimeric form) #status experimental
F;215/Disulfide bonds: interchain (to 208 in dimeric form) #status experimental

  Query Match 81.1%; Score 381; DB 1; Length 217;
  Best Local Similarity 82.0%; Pred. No. 1.4e-33;
  Matches 73; Conservative 8; Mismatches 8; Indels 0; Gaps 0;

```
Qy          4 TIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPTPS 63
              |:|||||||:|||:||| |||| |||||||| ||||:|||||| : |||  ||:|||||||
Db         29 TVPLSRLFDHAMLQAHRAHQLAIDTYQEFEETYIPKDQKYSFLHDSQTSFCFSDSIPTPS 88

Qy         64 NREETQQKSNLELLRISLLLIQSWLEPVQ 92
              | ||||||||||||||||||:||||||:
Db         89 NMEETQQKSNLELLRISLLLIESWLEPVR 117
```

RESULT 10
E32435
choriomammotropin B precursor - human
N;Alternate names: chorionic somatomammotropin 2
C;Species: Homo sapiens (man)
C;Date: 29-Dec-1989 #sequence_revision 29-Dec-1989 #text_change 16-Jul-1999
C;Accession: E32435
R;Chen, E.Y.; Liao, Y.C.; Smith, D.H.; Barrera-Saldana, H.A.; Gelinas, R.E.; Seeburg, P.H.
Genomics 4, 479-497, 1989
A;Title: The human growth hormone locus: nucleotide sequence, biology, and evolution.
A;Reference number: A32435; MUID:89307277; PMID:2744760
A;Accession: E32435
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-217 <CHE>
A;Cross-references: GB:J03071; NID:g183148; PIDN:AAA52553.1; PID:g183153
C;Genetics:
A;Gene: GDB:CSH2
A;Cross-references: GDB:119813; OMIM:118820
A;Map position: 17q22-17q24
C;Superfamily: prolactin

  Query Match 81.1%; Score 381; DB 2; Length 217;
  Best Local Similarity 82.0%; Pred. No. 1.4e-33;
  Matches 73; Conservative 8; Mismatches 8; Indels 0; Gaps 0;

```
Qy          4 TIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPTPS 63
              |:|||||||:|||:||| |||| |||||||| ||||:|||||| : |||  ||:|||||||
Db         29 TVPLSRLFDHAMLQAHRAHQLAIDTYQEFEETYIPKDQKYSFLHDSQTSFCFSDSIPTPS 88
```

```
Qy          64 NREETQQKSNLELLRISLLLIQSWLEPVQ 92
               | ||||||||||||||||||:||||||:
Db          89 NMEETQQKSNLELLRISLLLIESWLEPVR 117
```

RESULT 11
A26449
choriomammotropin precursor (allele hCS-3) - human
C;Species: Homo sapiens (man)
C;Date: 30-Jun-1988 #sequence_revision 30-Jun-1988 #text_change 28-Jul-1995
C;Accession: A26449
R;Hirt, H.; Kimelman, J.; Birnbaum, M.J.; Chen, E.Y.; Seeburg, P.H.; Eberhardt, N.L.; Barta, A.
DNA 6, 59-70, 1987
A;Title: The human growth hormone gene locus: structure, evolution, and allelic variations.
A;Reference number: A26449; MUID:87161235; PMID:3030680
A;Accession: A26449
A;Molecule type: DNA
A;Residues: 1-215 <HIR>
C;Superfamily: prolactin
F;1-26/Domain: signal sequence #status predicted <SIG>
F;27-215/Product: choriomammotropin, hCS-3 allele #status predicted <MAT>

Query Match 76.5%; Score 359.5; DB 2; Length 215;
Best Local Similarity 80.5%; Pred. No. 2.9e-31;
Matches 70; Conservative 8; Mismatches 8; Indels 1; Gaps 1;

```
Qy           4 TIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPTPS 63
               |:|||||||:|||:||| |||| |||||||| ||||:|||||| : |||  ||:||||||
Db          29 TVPLSRLFDHAMLQAHRAHQLAIDTYQEFEETYIPKDQKYSFLHDSQTSFCFSDSIPTPS 88

Qy          64 NREETQQKSNLELLRISLLLIQSWLEP 90
               | |||||||||||||: ||||:|||||
Db          89 NMEETQQKSNLELLRL-LLLIESWLEP 114
```

RESULT 12
B49159
somatotropin - golden hamster
N;Alternate names: growth hormone
C;Species: Mesocricetus auratus (golden hamster)
C;Date: 19-Dec-1993 #sequence_revision 18-Nov-1994 #text_change 21-Jul-2000
C;Accession: B49159
R;Southard, J.N.; Sanchez-Jimenez, F.; Campbell, G.T.; Talamantes, F.
Endocrinology 129, 2965-2971, 1991
A;Title: Sequence and expression of hamster prolactin and growth hormone messenger RNAs.
A;Reference number: A49159; MUID:92063850; PMID:1954881
A;Accession: B49159
A;Status: preliminary
A;Molecule type: mRNA
A;Residues: 1-216 <SOU>
A;Cross-references: GB:S66299; NID:g239355; PIDN:AAB20368.1; PID:g239356
A;Note: sequence extracted from NCBI backbone (NCBIN:66299, NCBIP:66300)
C;Superfamily: prolactin

Query Match 66.1%; Score 310.5; DB 2; Length 216;
Best Local Similarity 67.0%; Pred. No. 5.5e-26;
Matches 61; Conservative 13; Mismatches 16; Indels 1; Gaps 1;

```
Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
              || :||| || ||:||| |||| |||:||| |||: |:|| :|| ||:  |||:||
Db         27 FPAMPLSSLFANAVLRAQHLHQLAADTYKEFERAYIPEGQRYS-IQNAQTAFCFSETIPA 85

Qy         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |: :|| ||:|::|||| |||||||| |||
Db         86 PTGKEEAQQRSDMELLRFSLLLIQSWLGPVQ 116
```

RESULT 13
PN0140
somatotropin - sei whale
N;Alternate names: growth hormone
C;Species: Balaenoptera borealis (sei whale)
C;Date: 07-May-1993 #sequence_revision 07-May-1993 #text_change 07-May-1999
C;Accession: PN0140
R;Yudaev, N.A.; Pankov, Y.A.; Bulatov, A.A.; Osipova, T.A.
Biokhimiia 47, 1059-1069, 1982
A;Title: Amino acid sequence of seiwhale somatotropin.
A;Reference number: PN0140; MUID:83000569; PMID:7115813
A;Accession: PN0140
A;Molecule type: protein
A;Residues: 1-190 <YUD>
A;Note: article in Russian with English abstract
C;Superfamily: prolactin
C;Keywords: growth factor; hormone
F;52-163,180-188/Disulfide bonds: #status predicted

Query Match 65.4%; Score 307.5; DB 2; Length 190;
Best Local Similarity 67.0%; Pred. No. 9.8e-26;
Matches 61; Conservative 14; Mismatches 15; Indels 1; Gaps 1;

```
Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
              || :||| || ||:||| ||:|| |||:||| |||: |:| |||| |::  ||| |||
Db          1 FPAMPLSSLFANAVLRAQHLHELAADTYKEFERAYIPEGQRY-FLQNAQSTGCFSEVIPT 59

Qy         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |:|::| ||:|::|||| |||||||| |||
Db         60 PANKDEAQQRSDVELLRFSLLLIQSWLGPVQ 90
```

RESULT 14
STMS
somatotropin precursor - mouse
N;Alternate names: growth hormone
C;Species: Mus musculus (house mouse)
C;Date: 30-Sep-1987 #sequence_revision 30-Sep-1987 #text_change 28-May-1999
C;Accession: B23911
R;Linzer, D.I.H.; Talamantes, F.
J. Biol. Chem. 260, 9574-9579, 1985
A;Title: Nucleotide sequence of mouse prolactin and growth hormone mRNAs and
expression of these mRNAs during pregnancy.
A;Reference number: A92548; MUID:85261358; PMID:2991252

A;Accession: B23911
A;Molecule type: mRNA
A;Residues: 1-216 <LIN>
A;Cross-references: GB:X02891; GB:K03232; NID:g51067; PIDN:CAA26650.1;
PID:g51068
C;Superfamily: prolactin
C;Keywords: anterior pituitary; growth factor; hormone
F;1-26/Domain: signal sequence #status predicted <SIG>
F;27-216/Product: somatotropin #status predicted <STN>
F;78-189,206-214/Disulfide bonds: #status predicted

  Query Match   64.8%; Score 304.5; DB 1; Length 216;
  Best Local Similarity   64.8%; Pred. No. 2.4e-25;
  Matches   59; Conservative   14; Mismatches   17; Indels   1; Gaps   1;

```
Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
              || :||| || ||:||| ||||| |||:||| |||| |:|| :|| | :  |||:||
Db         27 FPAMPLSSLFSNAVLRAQHLHQLAADTYKEFERAYIPEGQRYS-IQNAQAAFCFSETIPA 85

Qy         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
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Db         86 PTGKEEAQQRTDMELLRFSLLLIQSWLGPVQ 116
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RESULT 15
STHO
somatotropin - horse
N;Alternate names: growth hormone
C;Species: Equus caballus (domestic horse)
C;Date: 13-Jul-1981 #sequence_revision 13-Jul-1981 #text_change 23-Aug-1996
C;Accession: A91772; A91395; A91383; A90240; A01514
R;Zakin, M.M.; Poskus, E.; Langton, A.A.; Ferrara, P.; Santome, J.A.; Dellacha,
J.M.; Paladini, A.C.
Int. J. Pept. Protein Res. 8, 435-444, 1976
A;Title: Primary structure of equine growth hormone.
A;Reference number: A91772; MUID:77005410; PMID:965151
A;Accession: A91772
A;Molecule type: protein
A;Residues: 1-190 <ZAK>
R;Zakin, M.M.; Poskus, E.; Dellacha, J.M.; Paladini, A.C.; Santome, J.A.
FEBS Lett. 34, 353-355, 1973
A;Title: The amino acid sequence of equine growth hormone.
A;Reference number: A91395; MUID:74020362; PMID:4747849
A;Accession: A91395
A;Molecule type: protein
A;Residues: 1-190 <ZA2>
R;Zakin, M.M.; Poskus, E.; Dellacha, J.M.; Paladini, A.C.; Santome, J.A.
FEBS Lett. 25, 77-82, 1972
A;Title: Amino acid sequences around the cystine residues in equine growth
hormone.
A;Reference number: A91383
A;Accession: A91383
A;Molecule type: protein
A;Residues: 42-69;157-190 <ZA3>
R;Oliver, L.; Hartree, A.S.
Biochem. J. 109, 19-24, 1968

A;Title: Amino acid sequences around the cystine residues in horse growth hormone.
A;Reference number: A90240; MUID:68368390; PMID:4876100
A;Accession: A90240
A;Molecule type: protein
A;Residues: 176-190 <OLI>
C;Superfamily: prolactin
C;Keywords: hormone; pituitary
F;52-163,180-188/Disulfide bonds: #status experimental

Query Match 64.4%; Score 302.5; DB 1; Length 190;
Best Local Similarity 64.8%; Pred. No. 3.4e-25;
Matches 59; Conservative 14; Mismatches 17; Indels 1; Gaps 1;

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              || :||| || ||:|||  ||||| |||:||| ||||: |:|| :|| | :  |||:||
Db          1 FPAMPLSSLFANAVLRAQHLHQLAADTYKEFERAYIPEGQRYS-IQNAQAAFCFSETIPA 59

Qy         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
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Db         60 PTGKDEAQQRSDMELLRFSLLLIQSWLGPVQ 90
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Search completed: July 15, 2004, 16:37:32
Job time : 10.4652 secs

GenCore version 5.1.6

OM protein - protein search, using sw model

Run on: July 15, 2004, 16:37:41 ; Search time 38.2761 Seconds
(without alignments)
751.267 Million cell updates/sec

Title: US-09-423-100-2
Perfect score: 470
Sequence: 1 MFPTIPLSRLFDNAMLRAHR.....NLELLRISLLLIQSWLEPVQ 92

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 1285345 seqs, 312560633 residues

Total number of hits satisfying chosen parameters: 1285345

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Published_Applications_AA:*
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18: /cgn2_6/ptodata/1/pubpaa/US60_PUBCOMB.pep:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description

1	470	100.0	92	13	US-10-054-873-2	Sequence 2, Appli
2	470	100.0	134	10	US-09-819-094-24	Sequence 24, Appl
3	470	100.0	134	16	US-10-714-067-24	Sequence 24, Appl
4	470	100.0	150	13	US-10-054-873-7	Sequence 7, Appli
5	465	98.9	188	12	US-10-621-693-18	Sequence 18, Appl
6	465	98.9	192	10	US-09-819-094-23	Sequence 23, Appl
7	465	98.9	192	12	US-10-621-693-8	Sequence 8, Appli
8	465	98.9	192	12	US-10-621-693-78	Sequence 78, Appl
9	465	98.9	192	12	US-10-621-693-86	Sequence 86, Appl
10	465	98.9	192	16	US-10-714-067-23	Sequence 23, Appl
11	465	98.9	193	12	US-10-621-693-42	Sequence 42, Appl
12	465	98.9	206	12	US-10-621-693-72	Sequence 72, Appl
13	465	98.9	391	12	US-10-621-693-51	Sequence 51, Appl
14	465	98.9	574	12	US-10-621-693-32	Sequence 32, Appl
15	465	98.9	576	12	US-10-621-693-39	Sequence 39, Appl
16	465	98.9	589	12	US-10-621-693-53	Sequence 53, Appl
17	465	98.9	786	12	US-10-621-693-55	Sequence 55, Appl
18	465	98.9	810	12	US-10-621-693-76	Sequence 76, Appl
19	460	97.9	191	10	US-09-984-010-23	Sequence 23, Appl
20	460	97.9	191	12	US-10-646-798-2	Sequence 2, Appli
21	460	97.9	191	12	US-10-621-693-2	Sequence 2, Appli
22	460	97.9	191	12	US-10-621-693-21	Sequence 21, Appl
23	460	97.9	191	12	US-10-621-693-80	Sequence 80, Appl
24	460	97.9	191	12	US-10-621-693-82	Sequence 82, Appl
25	460	97.9	191	12	US-10-621-693-84	Sequence 84, Appl
26	460	97.9	191	14	US-10-153-207-1	Sequence 1, Appli
27	460	97.9	191	14	US-10-400-377-1	Sequence 1, Appli
28	460	97.9	191	14	US-10-400-708-1	Sequence 1, Appli
29	460	97.9	191	14	US-10-298-148-1	Sequence 1, Appli
30	460	97.9	191	16	US-10-718-340-1	Sequence 1, Appli
31	460	97.9	191	16	US-10-658-834A-866	Sequence 866, App
32	460	97.9	191	16	US-10-658-834A-867	Sequence 867, App
33	460	97.9	191	16	US-10-658-834A-868	Sequence 868, App
34	460	97.9	191	16	US-10-658-834A-869	Sequence 869, App
35	460	97.9	191	16	US-10-658-834A-870	Sequence 870, App
36	460	97.9	191	16	US-10-658-834A-871	Sequence 871, App
37	460	97.9	191	16	US-10-658-834A-872	Sequence 872, App
38	460	97.9	191	16	US-10-658-834A-873	Sequence 873, App
39	460	97.9	191	16	US-10-658-834A-874	Sequence 874, App
40	460	97.9	191	16	US-10-658-834A-875	Sequence 875, App
41	460	97.9	191	16	US-10-658-834A-876	Sequence 876, App
42	460	97.9	191	16	US-10-658-834A-877	Sequence 877, App
43	460	97.9	191	16	US-10-658-834A-878	Sequence 878, App
44	460	97.9	191	16	US-10-658-834A-879	Sequence 879, App
45	460	97.9	191	16	US-10-658-834A-880	Sequence 880, App

ALIGNMENTS

RESULT 1
US-10-054-873-2
; Sequence 2, Application US/10054873
; Publication No. US20020164712A1
; GENERAL INFORMATION:
; APPLICANT: Gan, Zhong Ru

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;         TITLE OF INVENTION: Chimeric Protein Containing an
;                             Intramolecular Chaperone-Like Sequence
;         NUMBER OF SEQUENCES: 7
;         CORRESPONDENCE ADDRESS:
;              ADDRESSEE: Townsend and Townsend and Crew LLP
;              STREET: Two Embarcadero Center, Eighth Floor
;              CITY: San Francisco
;              STATE: California
;              COUNTRY: USA
;              ZIP: 94111-3834
;         COMPUTER READABLE FORM:
;              MEDIUM TYPE: Floppy disk
;              COMPUTER: IBM PC compatible
;              OPERATING SYSTEM: PC-DOS/MS-DOS
;              SOFTWARE: PatentIn Release #1.0, Version #1.30
;         CURRENT APPLICATION DATA:
;              APPLICATION NUMBER: US/10/054,873
;              FILING DATE: 22-Jan-2002
;              CLASSIFICATION: <Unknown>
;         PRIOR APPLICATION DATA:
;              APPLICATION NUMBER: WO PCT/CN98/00052
;              FILING DATE: 31-MAR-1998
;              APPLICATION NUMBER: US 09/423,100
;              FILING DATE: 11-DEC-2000
;         ATTORNEY/AGENT INFORMATION:
;              NAME: Mycroft, Frank J
;              REGISTRATION NUMBER: 46,946
;              REFERENCE/DOCKET NUMBER: 020167-000130US
;    INFORMATION FOR SEQ ID NO: 2:
;         SEQUENCE CHARACTERISTICS:
;              LENGTH: 92 amino acids
;              TYPE: amino acid
;              STRANDEDNESS: <Unknown>
;              TOPOLOGY: linear
;         MOLECULE TYPE: protein
;         SEQUENCE DESCRIPTION: SEQ ID NO: 2:
US-10-054-873-2

  Query Match             100.0%;  Score 470;  DB 13;  Length 92;
  Best Local Similarity   100.0%;  Pred. No. 4.4e-46;
  Matches   92;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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Db          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60

Qy         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
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Db         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92


RESULT 2
US-09-819-094-24
; Sequence 24, Application US/09819094
; Publication No. US20030186382A1
; GENERAL INFORMATION:
;  APPLICANT: Weiner, Richard I.
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; APPLICANT: Martial, Joseph A.
; APPLICANT: Struman, Ingrid
; APPLICANT: Taylor, Robert
; APPLICANT: Bentzien, Frauke
; TITLE OF INVENTION: No. US20030186382A1el Antiangiogenic Peptide Agents and Their
; TITLE OF INVENTION: Therapeutic and Diagnostic Use
; FILE REFERENCE: UCSF-018/02US
; CURRENT APPLICATION NUMBER: US/09/819,094
; CURRENT FILING DATE: 2001-03-27
; PRIOR APPLICATION NUMBER: 09/076,675
; PRIOR FILING DATE: 1998-05-12
; PRIOR APPLICATION NUMBER: 60/046,394
; PRIOR FILING DATE: 1997-05-12
; NUMBER OF SEQ ID NOS: 34
; SEQ ID NO 24
; LENGTH: 134
; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-819-094-24

Query Match 100.0%; Score 470; DB 10; Length 134;
Best Local Similarity 100.0%; Pred. No. 7.1e-46;
Matches 92; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60

Qy         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
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RESULT 3
US-10-714-067-24
; Sequence 24, Application US/10714067
; Publication No. US20040077054A1
; GENERAL INFORMATION:
; APPLICANT: Weiner, Richard I.
; APPLICANT: Martial, Joseph A.
; APPLICANT: Struman, Ingrid
; APPLICANT: Taylor, Robert
; APPLICANT: Bentzien, Frauke
; TITLE OF INVENTION: Novel Antiangiogenic Peptide Agents and Their
; TITLE OF INVENTION: Therapeutic and Diagnostic Use
; FILE REFERENCE: UCSF-018/02US
; CURRENT APPLICATION NUMBER: US/10/714,067
; CURRENT FILING DATE: 2003-11-14
; PRIOR APPLICATION NUMBER: US/09/819,094
; PRIOR FILING DATE: 2001-03-27
; PRIOR APPLICATION NUMBER: 09/076,675
; PRIOR FILING DATE: 1998-05-12
; PRIOR APPLICATION NUMBER: 60/046,394
; PRIOR FILING DATE: 1997-05-12
; NUMBER OF SEQ ID NOS: 34
; SEQ ID NO 24

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;   LENGTH: 134
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-10-714-067-24

  Query Match             100.0%;  Score 470;  DB 16;  Length 134;
  Best Local Similarity   100.0%;  Pred. No. 7.1e-46;
  Matches   92;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
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Qy         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              ||||||||||||||||||||||||||||||||
Db         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92


RESULT 4
US-10-054-873-7
; Sequence 7, Application US/10054873
; Publication No. US20020164712A1
;   GENERAL INFORMATION:
;        APPLICANT: Gan, Zhong Ru
;        TITLE OF INVENTION: Chimeric Protein Containing an
;                            Intramolecular Chaperone-Like Sequence
;        NUMBER OF SEQUENCES: 7
;        CORRESPONDENCE ADDRESS:
;             ADDRESSEE: Townsend and Townsend and Crew LLP
;             STREET: Two Embarcadero Center, Eighth Floor
;             CITY: San Francisco
;             STATE: California
;             COUNTRY: USA
;             ZIP: 94111-3834
;        COMPUTER READABLE FORM:
;             MEDIUM TYPE: Floppy disk
;             COMPUTER: IBM PC compatible
;             OPERATING SYSTEM: PC-DOS/MS-DOS
;             SOFTWARE: PatentIn Release #1.0, Version #1.30
;        CURRENT APPLICATION DATA:
;             APPLICATION NUMBER: US/10/054,873
;             FILING DATE: 22-Jan-2002
;             CLASSIFICATION: <Unknown>
;        PRIOR APPLICATION DATA:
;             APPLICATION NUMBER: WO PCT/CN98/00052
;             FILING DATE: 31-MAR-1998
;             APPLICATION NUMBER: US 09/423,100
;             FILING DATE: 11-DEC-2000
;        ATTORNEY/AGENT INFORMATION:
;             NAME: Mycroft, Frank J
;             REGISTRATION NUMBER: 46,946
;             REFERENCE/DOCKET NUMBER: 020167-000130US
;   INFORMATION FOR SEQ ID NO: 7:
;        SEQUENCE CHARACTERISTICS:
;             LENGTH: 150 amino acids
;             TYPE: amino acid
;             STRANDEDNESS: <Unknown>
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;             TOPOLOGY: linear
;          MOLECULE TYPE: protein
;          SEQUENCE DESCRIPTION: SEQ ID NO: 7:
US-10-054-873-7

  Query Match             100.0%;  Score 470;  DB 13;  Length 150;
  Best Local Similarity   100.0%;  Pred. No. 8.2e-46;
  Matches   92;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60

Qy         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              ||||||||||||||||||||||||||||||||
Db         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92


RESULT 5
US-10-621-693-18
; Sequence 18, Application US/10621693
; Publication No. US20040059093A1
; GENERAL INFORMATION:
;  APPLICANT: Gentide Biopharmaceuticals, Inc.
;  APPLICANT:  Bussell, Stuart
;  TITLE OF INVENTION: METHODS TO CONSTRUCT MULTIMERIC DNA AND POLYMERIC PROTEIN
SEQUENCES AS
;  TITLE OF INVENTION:  DIRECT FUSIONS OR WITH LINKERS
;  FILE REFERENCE: GNT-00101.P.1-US
;  CURRENT APPLICATION NUMBER: US/10/621,693
;  CURRENT FILING DATE:  2003-07-16
;  PRIOR APPLICATION NUMBER: US 60/396,466
;  PRIOR FILING DATE: 2002-07-16
;  NUMBER OF SEQ ID NOS: 86
;  SOFTWARE: PatentIn version 3.0
; SEQ ID NO 18
;   LENGTH: 188
;   TYPE: PRT
;   ORGANISM: Artificial
;   FEATURE:
;   OTHER INFORMATION: synthetic sequence
US-10-621-693-18

  Query Match             98.9%;  Score 465;  DB 12;  Length 188;
  Best Local Similarity   98.9%;  Pred. No. 4.1e-45;
  Matches   91;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
              |||||||||||||||||||||||||||||||||||||||||||||||||||||| ||||||
Db          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIP 60

Qy         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
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Db         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92


RESULT 6
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US-09-819-094-23
; Sequence 23, Application US/09819094
; Publication No. US20030186382A1
; GENERAL INFORMATION:
; APPLICANT: Weiner, Richard I.
; APPLICANT: Martial, Joseph A.
; APPLICANT: Struman, Ingrid
; APPLICANT: Taylor, Robert
; APPLICANT: Bentzien, Frauke
; TITLE OF INVENTION: No. US20030186382A1el Antiangiogenic Peptide Agents and Their
; TITLE OF INVENTION: Therapeutic and Diagnostic Use
; FILE REFERENCE: UCSF-018/02US
; CURRENT APPLICATION NUMBER: US/09/819,094
; CURRENT FILING DATE: 2001-03-27
; PRIOR APPLICATION NUMBER: 09/076,675
; PRIOR FILING DATE: 1998-05-12
; PRIOR APPLICATION NUMBER: 60/046,394
; PRIOR FILING DATE: 1997-05-12
; NUMBER OF SEQ ID NOS: 34
; SEQ ID NO 23
; LENGTH: 192
; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-819-094-23

Query Match 98.9%; Score 465; DB 10; Length 192;
Best Local Similarity 98.9%; Pred. No. 4.2e-45;
Matches 91; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

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Qy          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||| ||||||
Db          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIP 60

Qy         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |||||||||||||||||||||||||||||||
Db         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
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RESULT 7
US-10-621-693-8
; Sequence 8, Application US/10621693
; Publication No. US20040059093A1
; GENERAL INFORMATION:
; APPLICANT: Gentide Biopharmaceuticals, Inc.
; APPLICANT: Bussell, Stuart
; TITLE OF INVENTION: METHODS TO CONSTRUCT MULTIMERIC DNA AND POLYMERIC PROTEIN SEQUENCES AS
; TITLE OF INVENTION: DIRECT FUSIONS OR WITH LINKERS
; FILE REFERENCE: GNT-00101.P.1-US
; CURRENT APPLICATION NUMBER: US/10/621,693
; CURRENT FILING DATE: 2003-07-16
; PRIOR APPLICATION NUMBER: US 60/396,466
; PRIOR FILING DATE: 2002-07-16
; NUMBER OF SEQ ID NOS: 86
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 8

; LENGTH: 192
; TYPE: PRT
; ORGANISM: Artificial
; FEATURE:
; OTHER INFORMATION: synthetic sequence
; FEATURE:
; NAME/KEY: mat_peptide
; LOCATION: (1)..()
US-10-621-693-8

  Query Match 98.9%; Score 465; DB 12; Length 192;
  Best Local Similarity 98.9%; Pred. No. 4.2e-45;
  Matches 91; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
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Db 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIP 60

Qy 61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
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Db 61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92

RESULT 8
US-10-621-693-78
; Sequence 78, Application US/10621693
; Publication No. US20040059093A1
; GENERAL INFORMATION:
; APPLICANT: Gentide Biopharmaceuticals, Inc.
; APPLICANT: Bussell, Stuart
; TITLE OF INVENTION: METHODS TO CONSTRUCT MULTIMERIC DNA AND POLYMERIC PROTEIN
SEQUENCES AS
; TITLE OF INVENTION: DIRECT FUSIONS OR WITH LINKERS
; FILE REFERENCE: GNT-00101.P.1-US
; CURRENT APPLICATION NUMBER: US/10/621,693
; CURRENT FILING DATE: 2003-07-16
; PRIOR APPLICATION NUMBER: US 60/396,466
; PRIOR FILING DATE: 2002-07-16
; NUMBER OF SEQ ID NOS: 86
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 78
; LENGTH: 192
; TYPE: PRT
; ORGANISM: Artificial
; FEATURE:
; OTHER INFORMATION: synthetic sequence
US-10-621-693-78

  Query Match 98.9%; Score 465; DB 12; Length 192;
  Best Local Similarity 98.9%; Pred. No. 4.2e-45;
  Matches 91; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
      ||||||||||||||||||||||||||||||||||||||||||||||||||||| ||||||
Db 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIP 60

Qy 61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92

```
                  ||||||||||||||||||||||||||||||
Db          61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92


RESULT 9
US-10-621-693-86
; Sequence 86, Application US/10621693
; Publication No. US20040059093A1
; GENERAL INFORMATION:
;  APPLICANT: Gentide Biopharmaceuticals, Inc.
;  APPLICANT:  Bussell, Stuart
;  TITLE OF INVENTION: METHODS TO CONSTRUCT MULTIMERIC DNA AND POLYMERIC PROTEIN
SEQUENCES AS
;  TITLE OF INVENTION:  DIRECT FUSIONS OR WITH LINKERS
;  FILE REFERENCE: GNT-00101.P.1-US
;  CURRENT APPLICATION NUMBER: US/10/621,693
;  CURRENT FILING DATE:  2003-07-16
;  PRIOR APPLICATION NUMBER: US 60/396,466
;  PRIOR FILING DATE: 2002-07-16
;  NUMBER OF SEQ ID NOS: 86
;  SOFTWARE: PatentIn version 3.0
; SEQ ID NO 86
;   LENGTH: 192
;   TYPE: PRT
;   ORGANISM: Artificial
;   FEATURE:
;   OTHER INFORMATION: synthetic sequence
;   FEATURE:
;   NAME/KEY: MISC_FEATURE
;   LOCATION: (2)..(192)
;   OTHER INFORMATION: sequence is repeated N+2 times, where N is a positive
whole numbe
;   FEATURE:
;   NAME/KEY: mat_peptide
;   LOCATION: (1)..()
US-10-621-693-86

  Query Match             98.9%;  Score 465;  DB 12;  Length 192;
  Best Local Similarity   98.9%;  Pred. No. 4.2e-45;
  Matches   91;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy           1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
               ||||||||||||||||||||||||||||||||||||||||||||||||||||||| ||||||
Db           1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIP 60

Qy          61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
               ||||||||||||||||||||||||||||||||
Db          61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92


RESULT 10
US-10-714-067-23
; Sequence 23, Application US/10714067
; Publication No. US20040077054A1
; GENERAL INFORMATION:
;  APPLICANT: Weiner, Richard I.
;  APPLICANT:  Martial, Joseph A.
```

; APPLICANT: Struman, Ingrid
; APPLICANT: Taylor, Robert
; APPLICANT: Bentzien, Frauke
; TITLE OF INVENTION: Novel Antiangiogenic Peptide Agents and Their
; TITLE OF INVENTION: Therapeutic and Diagnostic Use
; FILE REFERENCE: UCSF-018/02US
; CURRENT APPLICATION NUMBER: US/10/714,067
; CURRENT FILING DATE: 2003-11-14
; PRIOR APPLICATION NUMBER: US/09/819,094
; PRIOR FILING DATE: 2001-03-27
; PRIOR APPLICATION NUMBER: 09/076,675
; PRIOR FILING DATE: 1998-05-12
; PRIOR APPLICATION NUMBER: 60/046,394
; PRIOR FILING DATE: 1997-05-12
; NUMBER OF SEQ ID NOS: 34
; SEQ ID NO 23
;   LENGTH: 192
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-10-714-067-23

  Query Match   98.9%; Score 465; DB 16; Length 192;
  Best Local Similarity   98.9%; Pred. No. 4.2e-45;
  Matches   91; Conservative   0; Mismatches   1; Indels   0; Gaps   0;

```
Qy          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||| ||||||
Db          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIP 60

Qy         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |||||||||||||||||||||||||||||||
Db         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
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RESULT 11
US-10-621-693-42
; Sequence 42, Application US/10621693
; Publication No. US20040059093A1
; GENERAL INFORMATION:
; APPLICANT: Gentide Biopharmaceuticals, Inc.
; APPLICANT: Bussell, Stuart
; TITLE OF INVENTION: METHODS TO CONSTRUCT MULTIMERIC DNA AND POLYMERIC PROTEIN
SEQUENCES AS
; TITLE OF INVENTION: DIRECT FUSIONS OR WITH LINKERS
; FILE REFERENCE: GNT-00101.P.1-US
; CURRENT APPLICATION NUMBER: US/10/621,693
; CURRENT FILING DATE: 2003-07-16
; PRIOR APPLICATION NUMBER: US 60/396,466
; PRIOR FILING DATE: 2002-07-16
; NUMBER OF SEQ ID NOS: 86
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 42
;   LENGTH: 193
;   TYPE: PRT
;   ORGANISM: Artificial
;   FEATURE:
;   OTHER INFORMATION: synthetic sequence

US-10-621-693-42

Query Match 98.9%; Score 465; DB 12; Length 193;
Best Local Similarity 98.9%; Pred. No. 4.2e-45;
Matches 91; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

```
Qy          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||| ||||||
Db          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIP 60

Qy         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |||||||||||||||||||||||||||||||
Db         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
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RESULT 12
US-10-621-693-72
; Sequence 72, Application US/10621693
; Publication No. US20040059093A1
; GENERAL INFORMATION:
; APPLICANT: Gentide Biopharmaceuticals, Inc.
; APPLICANT: Bussell, Stuart
; TITLE OF INVENTION: METHODS TO CONSTRUCT MULTIMERIC DNA AND POLYMERIC PROTEIN SEQUENCES AS
; TITLE OF INVENTION: DIRECT FUSIONS OR WITH LINKERS
; FILE REFERENCE: GNT-00101.P.1-US
; CURRENT APPLICATION NUMBER: US/10/621,693
; CURRENT FILING DATE: 2003-07-16
; PRIOR APPLICATION NUMBER: US 60/396,466
; PRIOR FILING DATE: 2002-07-16
; NUMBER OF SEQ ID NOS: 86
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 72
; LENGTH: 206
; TYPE: PRT
; ORGANISM: Artificial
; FEATURE:
; OTHER INFORMATION: synthetic sequence
US-10-621-693-72

Query Match 98.9%; Score 465; DB 12; Length 206;
Best Local Similarity 98.9%; Pred. No. 4.6e-45;
Matches 91; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

```
Qy          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||| ||||||
Db          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIP 60

Qy         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |||||||||||||||||||||||||||||||
Db         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
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RESULT 13
US-10-621-693-51
; Sequence 51, Application US/10621693
; Publication No. US20040059093A1

; GENERAL INFORMATION:
; APPLICANT: Gentide Biopharmaceuticals, Inc.
; APPLICANT: Bussell, Stuart
; TITLE OF INVENTION: METHODS TO CONSTRUCT MULTIMERIC DNA AND POLYMERIC PROTEIN SEQUENCES AS
; TITLE OF INVENTION: DIRECT FUSIONS OR WITH LINKERS
; FILE REFERENCE: GNT-00101.P.1-US
; CURRENT APPLICATION NUMBER: US/10/621,693
; CURRENT FILING DATE: 2003-07-16
; PRIOR APPLICATION NUMBER: US 60/396,466
; PRIOR FILING DATE: 2002-07-16
; NUMBER OF SEQ ID NOS: 86
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 51
; LENGTH: 391
; TYPE: PRT
; ORGANISM: Artificial
; FEATURE:
; OTHER INFORMATION: synthetic sequence
; FEATURE:
; NAME/KEY: mat_peptide
; LOCATION: (1)..()
US-10-621-693-51

Query Match 98.9%; Score 465; DB 12; Length 391;
Best Local Similarity 98.9%; Pred. No. 1e-44;
Matches 91; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

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Qy          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||| ||||||
Db          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIP 60

Qy         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |||||||||||||||||||||||||||||||
Db         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
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RESULT 14
US-10-621-693-32
; Sequence 32, Application US/10621693
; Publication No. US20040059093A1
; GENERAL INFORMATION:
; APPLICANT: Gentide Biopharmaceuticals, Inc.
; APPLICANT: Bussell, Stuart
; TITLE OF INVENTION: METHODS TO CONSTRUCT MULTIMERIC DNA AND POLYMERIC PROTEIN SEQUENCES AS
; TITLE OF INVENTION: DIRECT FUSIONS OR WITH LINKERS
; FILE REFERENCE: GNT-00101.P.1-US
; CURRENT APPLICATION NUMBER: US/10/621,693
; CURRENT FILING DATE: 2003-07-16
; PRIOR APPLICATION NUMBER: US 60/396,466
; PRIOR FILING DATE: 2002-07-16
; NUMBER OF SEQ ID NOS: 86
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 32
; LENGTH: 574
; TYPE: PRT

```
;   ORGANISM: Artificial
;   FEATURE:
;   OTHER INFORMATION: synthetic sequence
;   FEATURE:
;   NAME/KEY: MISC_FEATURE
;   LOCATION: (379)..(569)
;   OTHER INFORMATION: sequence is repeated N-1 times, where N is a positive
whole numbe
;   FEATURE:
;   NAME/KEY: mat_peptide
;   LOCATION: (1)..()
US-10-621-693-32

  Query Match             98.9%;  Score 465;  DB 12;  Length 574;
  Best Local Similarity   98.9%;  Pred. No. 1.7e-44;
  Matches   91;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||| ||||||
Db          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIP 60

Qy         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              ||||||||||||||||||||||||||||||||
Db         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92


RESULT 15
US-10-621-693-39
; Sequence 39, Application US/10621693
; Publication No. US20040059093A1
; GENERAL INFORMATION:
;  APPLICANT: Gentide Biopharmaceuticals, Inc.
;  APPLICANT:  Bussell, Stuart
;  TITLE OF INVENTION: METHODS TO CONSTRUCT MULTIMERIC DNA AND POLYMERIC PROTEIN
SEQUENCES AS
;  TITLE OF INVENTION:  DIRECT FUSIONS OR WITH LINKERS
;  FILE REFERENCE: GNT-00101.P.1-US
;  CURRENT APPLICATION NUMBER: US/10/621,693
;  CURRENT FILING DATE:  2003-07-16
;  PRIOR APPLICATION NUMBER: US 60/396,466
;  PRIOR FILING DATE: 2002-07-16
;  NUMBER OF SEQ ID NOS: 86
;  SOFTWARE: PatentIn version 3.0
; SEQ ID NO 39
;   LENGTH: 576
;   TYPE: PRT
;   ORGANISM: Artificial
;   FEATURE:
;   OTHER INFORMATION: synthetic sequence
;   FEATURE:
;   NAME/KEY: MISC_FEATURE
;   LOCATION: (380)..(571)
;   OTHER INFORMATION: sequence is repeated N-1 times, where N is a positive
whole numbe
;   FEATURE:
;   NAME/KEY: mat_peptide
;   LOCATION: (1)..()
```

US-10-621-693-39

Query Match 98.9%; Score 465; DB 12; Length 576;
Best Local Similarity 98.9%; Pred. No. 1.7e-44;
Matches 91; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

```
Qy          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||| ||||||
Db          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIP 60

Qy         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              ||||||||||||||||||||||||||||||||
Db         61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
```

Search completed: July 15, 2004, 17:05:07
Job time : 39.2761 secs

GenCore version 5.1.6

OM protein - protein search, using sw model

Run on: July 15, 2004, 16:29:50 ; Search time 31.4104 Seconds
(without alignments)
924.141 Million cell updates/sec

Title: US-09-423-100-2
Perfect score: 470
Sequence: 1 MFPTIPLSRLFDNAMLRAHR.....NLELLRISLLLIQSWLEPVQ 92

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 1017041 seqs, 315518202 residues

Total number of hits satisfying chosen parameters: 1017041

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : SPTREMBL_25:*
1: sp_archea:*
2: sp_bacteria:*
3: sp_fungi:*
4: sp_human:*
5: sp_invertebrate:*
6: sp_mammal:*
7: sp_mhc:*
8: sp_organelle:*
9: sp_phage:*
10: sp_plant:*
11: sp_rodent:*
12: sp_virus:*
13: sp_vertebrate:*
14: sp_unclassified:*
15: sp_rvirus:*
16: sp_bacteriap:*
17: sp_archeap:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description

1	435	92.6	217	6	Q8WNE0	Q8wne0 ateles geof
2	422	89.8	245	4	O14644	O14644 homo sapien
3	399	84.9	184	6	Q866T9	Q866t9 pan troglod
4	397	84.5	217	6	Q07369	Q07369 macaca mula
5	397	84.5	217	6	Q866U1	Q866u1 pan troglod
6	396	84.3	212	6	Q07368	Q07368 macaca mula
7	396	84.3	217	6	Q07367	Q07367 macaca mula
8	385	81.9	217	6	Q866T8	Q866t8 pan troglod
9	381	81.1	217	4	Q14407	Q14407 homo sapien
10	370	78.7	217	6	Q866U0	Q866u0 pan troglod
11	348	74.0	217	6	Q8WND9	Q8wnd9 ateles geof
12	336.5	71.6	202	4	O14643	O14643 homo sapien
13	318	67.7	217	6	Q8MI74	Q8mi74 callithrix
14	306.5	65.2	216	11	O70615	O70615 spalax leuc
15	301.5	64.1	216	6	Q8MI73	Q8mi73 delphinus d
16	301.5	64.1	216	6	Q8HYE5	Q8hye5 ailuropoda
17	301.5	64.1	216	6	Q7YQB8	Q7yqb8 hippopotamu
18	298.5	63.5	216	11	Q9R2C3	Q9r2c3 mus musculu
19	297.5	63.3	204	6	Q95205	Q95205 ovis aries
20	297.5	63.3	216	6	Q7YRR6	Q7yrr6 camelus dro
21	297.5	63.3	216	11	Q9JKM4	Q9jkm4 cavia porce
22	297	63.2	217	6	Q8MI75	Q8mi75 callithrix
23	290.5	61.8	192	6	Q9TU21	Q9tu21 capra hircu
24	289.5	61.6	192	6	Q9TQW9	Q9tqw9 bos indicus
25	289.5	61.6	217	6	Q7YQD2	Q7yqd2 giraffa cam
26	287.5	61.2	190	11	Q9JKG0	Q9jkg0 cavia porce
27	286.5	61.0	178	6	Q95MJ5	Q95mj5 tarsius ban
28	286.5	61.0	217	6	Q864S7	Q864s7 bos mutus g
29	285.5	60.7	217	6	Q9BEC0	Q9bec0 tragulus ja
30	285.5	60.7	217	6	Q9BEB9	Q9beb9 tragulus ja
31	285	60.6	167	4	P78451	P78451 homo sapien
32	283.5	60.3	178	6	Q95MJ6	Q95mj6 tarsius syr
33	280.5	59.7	217	6	Q28957	Q28957 sus scrofa
34	265.5	56.5	143	6	Q95240	Q95240 canis famil
35	261	55.5	216	13	Q804M1	Q804m1 anser anser
36	255.5	54.4	218	13	Q9PU72	Q9pu72 cynops pyrr
37	242.5	51.6	145	6	Q9BDR4	Q9bdr4 galago cras
38	236.5	50.3	215	13	Q7ZU47	Q7zu47 rana catesb
39	234	49.8	199	4	Q14406	Q14406 homo sapien
40	233.5	49.7	195	13	Q91386	Q91386 amia calva
41	229.5	48.8	217	13	Q7T1C3	Q7t1c3 ambystoma b
42	186.5	39.7	93	6	Q8HXV8	Q8hxv8 bos mutus g
43	177.5	37.8	209	13	Q8AXX9	Q8axx9 anguilla an
44	168.5	35.9	210	13	Q7SX86	Q7sx86 misgurnus a
45	167.5	35.6	200	13	Q8QFM8	Q8qfm8 clarias bat

ALIGNMENTS

RESULT 1
Q8WNE0
ID Q8WNE0 PRELIMINARY; PRT; 217 AA.
AC Q8WNE0;
DT 01-MAR-2002 (TrEMBLrel. 20, Created)
DT 01-MAR-2002 (TrEMBLrel. 20, Last sequence update)
DT 01-JUN-2003 (TrEMBLrel. 24, Last annotation update)

```
DE   Growth hormone.
GN   GH-N.
OS   Ateles geoffroyi (Black-handed spider monkey).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Platyrrhini; Cebidae; Atelinae; Ateles.
OX   NCBI_TaxID=9509;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Revol A., Esquivel D., Santiago D., Barrera-Saldana H.;
RT   "Independent duplication of the growth hormone gene in three
RT   Anthropoidean lineages.";
RL   Submitted (APR-2001) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF374234; AAL72286.1; -.
DR   GO; GO:0005576; C:extracellular; IEA.
DR   GO; GO:0005179; F:hormone activity; IEA.
DR   InterPro; IPR001400; Somatotropin.
DR   Pfam; PF00103; hormone; 1.
DR   PRINTS; PR00836; SOMATOTROPIN.
DR   PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR   PROSITE; PS00338; SOMATOTROPIN_2; 1.
SQ   SEQUENCE   217 AA;  24894 MW;  425829FF41EEAAE6 CRC64;

  Query Match           92.6%;  Score 435;  DB 6;  Length 217;
  Best Local Similarity  92.3%;  Pred. No. 4.3e-41;
  Matches   84;  Conservative    4;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
              ||||||||| ||||||||||||||||||||||||||||||||||||||| |||||||
Db         27 FPTIPLSRLLDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 86

Qy         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |::::|||||||||||||||||||| ||||
Db         87 PASKKETQQKSNLELLRISLLLIQSWFEPVQ 117


RESULT 2
O14644
ID   O14644      PRELIMINARY;      PRT;   245 AA.
AC   O14644;
DT   01-JAN-1998 (TrEMBLrel. 05, Created)
DT   01-JAN-1998 (TrEMBLrel. 05, Last sequence update)
DT   01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE   Placental growth hormone isoform hGH-V3 precursor.
GN   HGH-V.
OS   Homo sapiens (Human).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX   NCBI_TaxID=9606;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Term placenta;
RX   MEDLINE=98373737; PubMed=9709963;
RA   Boguszewski C.L., Svensson P.A., Jansson T., Clark R.,
RA   Carlsson L.M.S., Carlsson B.;
RT   "Cloning of two novel growth hormone transcripts expressed in human
RT   placenta.";
RL   J. Clin. Endocrinol. Metab. 83:2878-2885(1998).
```

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DR   EMBL; AF006061; AAB71829.1; -.
DR   HSSP; P01241; 1A22.
DR   GO; GO:0005576; C:extracellular; IEA.
DR   GO; GO:0005179; F:hormone activity; IEA.
DR   InterPro; IPR001400; Somatotropin.
DR   Pfam; PF00103; hormone; 1.
DR   PRINTS; PR00836; SOMATOTROPIN.
DR   PROSITE; PS00266; SOMATOTROPIN_1; 1.
KW   Signal.
FT   SIGNAL        1     26       POTENTIAL.
SQ   SEQUENCE   245 AA;  27101 MW;  14CC7F8CD75D91C8 CRC64;

  Query Match             89.8%;  Score 422;  DB 4;  Length 245;
  Best Local Similarity   92.3%;  Pred. No. 1.5e-39;
  Matches   84;  Conservative    3;  Mismatches    4;  Indels    0;  Gaps    0;

Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
              |||||||||||||||| ||:|||:|||||||||| |||||||||||||| |||||||
Db         27 FPTIPLSRLFDNAMLRARRLYQLAYDTYQEFEEAYILKEQKYSFLQNPQTSLCFSESIPT 86

Qy         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |||| :|||||||||||||||||||||||||
Db         87 PSNRVKTQQKSNLELLRISLLLIQSWLEPVQ 117


RESULT 3
Q866T9
ID   Q866T9      PRELIMINARY;      PRT;   184 AA.
AC   Q866T9;
DT   01-JUN-2003 (TrEMBLrel. 24, Created)
DT   01-JUN-2003 (TrEMBLrel. 24, Last sequence update)
DT   01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE   Placental lactogen PL-C (Fragment).
OS   Pan troglodytes (Chimpanzee).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Pan.
OX   NCBI_TaxID=9598;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Revol A., Esquivel D.E., Barrera H.S.;
RT   "The GH-PL locus a hot-point between human and chimpanzee genomes.";
RL   Submitted (AUG-2002) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AY146627; AAN84507.1; -.
DR   GO; GO:0005576; C:extracellular; IEA.
DR   GO; GO:0005179; F:hormone activity; IEA.
DR   InterPro; IPR001400; Somatotropin.
DR   Pfam; PF00103; hormone; 1.
DR   PRINTS; PR00836; SOMATOTROPIN.
DR   PROSITE; PS00266; SOMATOTROPIN_1; 1.
FT   NON_TER     184    184
SQ   SEQUENCE   184 AA;  21145 MW;  68D1FF4AE59178DD CRC64;

  Query Match             84.9%;  Score 399;  DB 6;  Length 184;
  Best Local Similarity   84.6%;  Pred. No. 4.2e-37;
  Matches   77;  Conservative    7;  Mismatches    7;  Indels    0;  Gaps    0;

Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
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                ||||||||||:|||:||| |||| ||||||||||||:|||||| : |||  ||:||||
Db          27 FPTIPLSRLFDHAMLQAHRAHQLAIDTYQEFEEAYIPKDQKYSFLHDSQTSFCFSDSIPT 86

Qy          62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
               ||| ||||||||||||||||||:||||||:
Db          87 PSNMEETQQKSNLELLRISLLLIESWLEPVR 117


RESULT 4
Q07369
ID   Q07369      PRELIMINARY;      PRT;   217 AA.
AC   Q07369;
DT   01-NOV-1996 (TrEMBLrel. 01, Created)
DT   01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
DT   01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE   Chorionic somatomammotropin-3.
OS   Macaca mulatta (Rhesus macaque).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Cercopithecidae;
OC   Cercopithecinae; Macaca.
OX   NCBI_TaxID=9544;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Midpregnancy placenta;
RX   MEDLINE=94008724; PubMed=8404617;
RA   Golos T.G., Durning M., Fisher J.M., Fowler P.D.;
RT   "Cloning of four growth hormone/chorionic somatomammotropin-related
RT   complementary deoxyribonucleic acids differentially expressed during
RT   pregnancy in the rhesus monkey placenta.";
RL   Endocrinology 133:1744-1752(1993).
DR   EMBL; L16554; AAA18841.1; -.
DR   PIR; I67409; I67409.
DR   HSSP; P01241; 1AXI.
DR   GO; GO:0005576; C:extracellular; IEA.
DR   GO; GO:0005179; F:hormone activity; IEA.
DR   InterPro; IPR001400; Somatotropin.
DR   Pfam; PF00103; hormone; 1.
DR   PRINTS; PR00836; SOMATOTROPIN.
DR   PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR   PROSITE; PS00338; SOMATOTROPIN_2; 1.
SQ   SEQUENCE   217 AA;  24874 MW;  F1EB6AFDBBA1B185 CRC64;

  Query Match             84.5%;  Score 397;  DB 6;  Length 217;
  Best Local Similarity   83.3%;  Pred. No. 8.5e-37;
  Matches   75;  Conservative    8;  Mismatches    7;  Indels    0;  Gaps    0;

Qy           3 PTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPTP 62
               |::|||||||| |::|||||||||||||||: |||||:|:| : ||| |  ||||||||
Db          28 PSVPLSRLFDNIMMQAHRLHQLAFDTYQEFEKTYIPKEKKHSLMGNPQASFCFSESIPTP 87

Qy          63 SNREETQQKSNLELLRISLLLIQSWLEPVQ 92
               ||||||||||||||||||||||||||||||
Db          88 SNREETQQKSNLELLRISLLLIQSWLEPVQ 117


RESULT 5
Q866U1
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ID   Q866U1      PRELIMINARY;      PRT;   217 AA.
AC   Q866U1;
DT   01-JUN-2003 (TrEMBLrel. 24, Created)
DT   01-JUN-2003 (TrEMBLrel. 24, Last sequence update)
DT   01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE   Placental lactogen PL-A.
OS   Pan troglodytes (Chimpanzee).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Pan.
OX   NCBI_TaxID=9598;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Revol A., Esquivel D.E., Barrera H.S.;
RT   "The GH-PL locus a hot-point between human and chimpanzee genomes.";
RL   Submitted (AUG-2002) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AY146625; AAN84505.1; -.
DR   GO; GO:0005576; C:extracellular; IEA.
DR   GO; GO:0005179; F:hormone activity; IEA.
DR   InterPro; IPR001400; Somatotropin.
DR   Pfam; PF00103; hormone; 1.
DR   PRINTS; PR00836; SOMATOTROPIN.
DR   PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR   PROSITE; PS00338; SOMATOTROPIN_2; 1.
SQ   SEQUENCE   217 AA;  25081 MW;  C74B6262D8A93060 CRC64;

  Query Match             84.5%;  Score 397;  DB 6;  Length 217;
  Best Local Similarity   87.6%;  Pred. No. 8.5e-37;
  Matches   78;  Conservative    6;  Mismatches    5;  Indels    0;  Gaps    0;

Qy          4 TIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPTPS 63
              |:|||||||:|||:||| :||| |||||||||| |||||||||||||| |||||||||
Db         29 TVPLSRLFDHAMLQAHRAYQLAIDTYQEFEEAYILKEQKYSFLQNPQTSLCFSESIPTPS 88

Qy         64 NREETQQKSNLELLRISLLLIQSWLEPVQ 92
              | ||||||||||||||||||:||||||:
Db         89 NMEETQQKSNLELLRISLLLIESWLEPVR 117


RESULT 6
Q07368
ID   Q07368      PRELIMINARY;      PRT;   212 AA.
AC   Q07368;
DT   01-NOV-1996 (TrEMBLrel. 01, Created)
DT   01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
DT   01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE   Somatotropin 2 precursor (Growth hormone 2) (Fragment).
OS   Macaca mulatta (Rhesus macaque).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Cercopithecidae;
OC   Cercopithecinae; Macaca.
OX   NCBI_TaxID=9544;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Placenta;
RX   MEDLINE=94008724; PubMed=8404617;
RA   Golos T.G., Durning M., Fisher J.M., Fowler P.D.;
RT   "Cloning of four growth hormone/chorionic somatomammotropin-related
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RT   complementary deoxyribonucleic acids differentially expressed during
RT   pregnancy in the rhesus monkey placenta.";
RL   Endocrinology 133:1744-1752(1993).
DR   EMBL; L16553; AAA18840.1; -.
DR   PIR; I67408; I67408.
DR   HSSP; P01241; 1AXI.
DR   GO; GO:0005576; C:extracellular; IEA.
DR   GO; GO:0005179; F:hormone activity; IEA.
DR   InterPro; IPR001400; Somatotropin.
DR   Pfam; PF00103; hormone; 1.
DR   PRINTS; PR00836; SOMATOTROPIN.
DR   PROSITE; PS00338; SOMATOTROPIN_2; 1.
FT   NON_TER       1      1
SQ   SEQUENCE   212 AA;  24525 MW;  27BC91106256E6F5 CRC64;

  Query Match             84.3%;  Score 396;  DB 6;  Length 212;
  Best Local Similarity   82.2%;  Pred. No. 1.1e-36;
  Matches   74;  Conservative   11;  Mismatches    5;  Indels    0;  Gaps    0;

Qy          3 PTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPTP 62
              |::|||||||:||::|||||||||||||||||||||||:|:| ::||| |  |::||||||
Db         23 PSVPLSRLFDHAMIQAHRLHQLAFDTYQEFEEAYIPKEKKHSLMENPQASFCFADSIPTP 82

Qy         63 SNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              || |||||||||||||||||||||||||||
Db         83 SNLEETQQKSNLELLRISLLLIQSWLEPVQ 112


RESULT 7
Q07367
ID   Q07367      PRELIMINARY;      PRT;   217 AA.
AC   Q07367;
DT   01-NOV-1996 (TrEMBLrel. 01, Created)
DT   01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
DT   01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE   Chorionic somatomammotropin-1.
OS   Macaca mulatta (Rhesus macaque).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Cercopithecidae;
OC   Cercopithecinae; Macaca.
OX   NCBI_TaxID=9544;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Midpregnancy placenta;
RX   MEDLINE=94008724; PubMed=8404617;
RA   Golos T.G., Durning M., Fisher J.M., Fowler P.D.;
RT   "Cloning of four growth hormone/chorionic somatomammotropin-related
RT   complementary deoxyribonucleic acids differentially expressed during
RT   pregnancy in the rhesus monkey placenta.";
RL   Endocrinology 133:1744-1752(1993).
DR   EMBL; L16552; AAA18839.1; -.
DR   PIR; I53267; I53267.
DR   HSSP; P01241; 1AXI.
DR   GO; GO:0005576; C:extracellular; IEA.
DR   GO; GO:0005179; F:hormone activity; IEA.
DR   InterPro; IPR001400; Somatotropin.
DR   Pfam; PF00103; hormone; 1.
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DR   PRINTS; PR00836; SOMATOTROPIN.
DR   PROSITE; PS00338; SOMATOTROPIN_2; 1.
SQ   SEQUENCE   217 AA;  24942 MW;  FF5AA8915131F2BC CRC64;

  Query Match             84.3%;  Score 396;  DB 6;  Length 217;
  Best Local Similarity   82.2%;  Pred. No. 1.1e-36;
  Matches   74;  Conservative   11;  Mismatches    5;  Indels    0;  Gaps    0;

Qy          3 PTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPTP 62
              |::|||||||:|||::|||||||||||||||||||||||:|:| ::||| |  |::||||||
Db         28 PSVPLSRLFDHAMIQAHRLHQLAFDTYQEFEEAYIPKEKKHSLMENPQASFCFADSIPTP 87

Qy         63 SNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              || |||||||||||||||||||||||||||
Db         88 SNLEETQQKSNLELLRISLLLIQSWLEPVQ 117


RESULT 8
Q866T8
ID   Q866T8      PRELIMINARY;      PRT;   217 AA.
AC   Q866T8;
DT   01-JUN-2003 (TrEMBLrel. 24, Created)
DT   01-JUN-2003 (TrEMBLrel. 24, Last sequence update)
DT   01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE   Placental lactogen PL-D.
OS   Pan troglodytes (Chimpanzee).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Pan.
OX   NCBI_TaxID=9598;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Revol A., Esquivel D.E., Barrera H.S.;
RT   "The GH-PL locus a hot-point between human and chimpanzee genomes.";
RL   Submitted (AUG-2002) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AY146628; AAN84508.1; -.
DR   GO; GO:0005576; C:extracellular; IEA.
DR   GO; GO:0005179; F:hormone activity; IEA.
DR   InterPro; IPR001400; Somatotropin.
DR   Pfam; PF00103; hormone; 1.
DR   PRINTS; PR00836; SOMATOTROPIN.
DR   PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR   PROSITE; PS00338; SOMATOTROPIN_2; 1.
SQ   SEQUENCE   217 AA;  25135 MW;  1EB7B89B8A12E4F4 CRC64;

  Query Match             81.9%;  Score 385;  DB 6;  Length 217;
  Best Local Similarity   83.1%;  Pred. No. 1.9e-35;
  Matches   74;  Conservative    8;  Mismatches    7;  Indels    0;  Gaps    0;

Qy          4 TIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPTPS 63
              |:|||||||:|||:||| |||| |||||||||||||:|||||| : |||  ||:|||||||
Db         29 TVPLSRLFDHAMLQAHRAHQLAIDTYQEFEEAYIPKDQKYSFLHDSQTSFCFSDSIPTPS 88

Qy         64 NREETQQKSNLELLRISLLLIQSWLEPVQ 92
              | |||||||||||||||||:|||||||:
Db         89 NMEETQQKSNLELLRISLLLIESWLEPVR 117
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RESULT 9
Q14407
ID   Q14407      PRELIMINARY;      PRT;   217 AA.
AC   Q14407;
DT   01-NOV-1996 (TrEMBLrel. 01, Created)
DT   01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
DT   01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE   Chorionic somatomammotropin CS-2 (Chorionic somatomammotropin hormone
DE   2).
OS   Homo sapiens (Human).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX   NCBI_TaxID=9606;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=89307277; PubMed=2744760;
RA   Chen E.Y., Liao Y.C., Smith D.H., Barrera-Saldana H.A., Gelinas R.E.,
RA   Seeburg P.H.;
RT   "The human growth hormone locus: nucleotide sequence, biology, and
RT   evolution.";
RL   Genomics 4:479-497(1989).
RN   [2]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=91102558; PubMed=1980158;
RA   Vnencak-Jones C.L., Phillips J.A. III.;
RT   "Hot spots for growth hormone gene deletions in homologous regions
RT   outside of Alu repeats.";
RL   Science 250:1745-1748(1990).
RN   [3]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Placenta;
RA   Strausberg R.;
RL   Submitted (JUL-2002) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; J03071; AAA52553.1; -.
DR   EMBL; BC022044; AAH22044.1; -.
DR   EMBL; BC035965; AAH35965.1; -.
DR   PIR; E32435; E32435.
DR   HSSP; P01241; 1A22.
DR   GO; GO:0005576; C:extracellular; IEA.
DR   GO; GO:0005179; F:hormone activity; IEA.
DR   InterPro; IPR001400; Somatotropin.
DR   Pfam; PF00103; hormone; 1.
DR   PRINTS; PR00836; SOMATOTROPIN.
DR   PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR   PROSITE; PS00338; SOMATOTROPIN_2; 1.
SQ   SEQUENCE   217 AA;  24994 MW;  39FAACDDB6B2E951 CRC64;

  Query Match           81.1%;  Score 381;  DB 4;  Length 217;
  Best Local Similarity 82.0%;  Pred. No. 5.5e-35;
  Matches   73;  Conservative    8;  Mismatches    8;  Indels    0;  Gaps    0;

Qy          4 TIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPTPS 63
              |:|||||||:|||:||| |||| |||||||| ||||:|||||| : |||  ||:|||||||
Db         29 TVPLSRLFDHAMLQAHRAHQLAIDTYQEFEETYIPKDQKYSFLHDSQTSFCFSDSIPTPS 88

Qy         64 NREETQQKSNLELLRISLLLIQSWLEPVQ 92
              | ||||||||||||||||||:||||||:
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Db         89 NMEETQQKSNLELLRISLLLIESWLEPVR 117


RESULT 10
Q866U0
ID   Q866U0      PRELIMINARY;      PRT;   217 AA.
AC   Q866U0;
DT   01-JUN-2003 (TrEMBLrel. 24, Created)
DT   01-JUN-2003 (TrEMBLrel. 24, Last sequence update)
DT   01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE   Placental lactogen PL-B.
OS   Pan troglodytes (Chimpanzee).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Pan.
OX   NCBI_TaxID=9598;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Revol A., Esquivel D.E., Barrera H.S.;
RT   "The GH-PL locus a hot-point between human and chimpanzee genomes.";
RL   Submitted (AUG-2002) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AY146626; AAN84506.1; -.
DR   GO; GO:0005576; C:extracellular; IEA.
DR   GO; GO:0005179; F:hormone activity; IEA.
DR   InterPro; IPR001400; Somatotropin.
DR   Pfam; PF00103; hormone; 1.
DR   PRINTS; PR00836; SOMATOTROPIN.
DR   PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR   PROSITE; PS00338; SOMATOTROPIN_2; 1.
SQ   SEQUENCE   217 AA;  24884 MW;  A1663257499827D4 CRC64;

  Query Match             78.7%;  Score 370;  DB 6;  Length 217;
  Best Local Similarity   80.9%;  Pred. No. 9.6e-34;
  Matches   72;  Conservative    7;  Mismatches   10;  Indels    0;  Gaps    0;

Qy          4 TIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPTPS 63
              |:|||||  |||:||  |||| |||||||||||||:|||||| : |||  ||:|||||
Db         29 TVPLSRLFKEAMLQAHPAHQLAIDTYQEFEEAYIPKDQKYSFLHDSQTSFCFSDSIPTPS 88

Qy         64 NREETQQKSNLELLRISLLLIQSWLEPVQ 92
              | ||||||||||||||||||:||||||:
Db         89 NMEETQQKSNLELLRISLLLIESWLEPVR 117


RESULT 11
Q8WND9
ID   Q8WND9      PRELIMINARY;      PRT;   217 AA.
AC   Q8WND9;
DT   01-MAR-2002 (TrEMBLrel. 20, Created)
DT   01-MAR-2002 (TrEMBLrel. 20, Last sequence update)
DT   01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE   Growth hormone.
GN   GH-V.
OS   Ateles geoffroyi (Black-handed spider monkey).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Platyrrhini; Cebidae; Atelinae; Ateles.
OX   NCBI_TaxID=9509;
RN   [1]
```

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RP   SEQUENCE FROM N.A.
RA   Revol A., Esquivel D., Santiago D., Barrera-Saldana H.;
RT   "Independent duplication of the growth hormone gene in three
RT   Anthropoidean lineages.";
RL   Submitted (APR-2001) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF374235; AAL72287.1; -.
DR   GO; GO:0005576; C:extracellular; IEA.
DR   GO; GO:0005179; F:hormone activity; IEA.
DR   InterPro; IPR001400; Somatotropin.
DR   Pfam; PF00103; hormone; 1.
DR   PRINTS; PR00836; SOMATOTROPIN.
DR   PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR   PROSITE; PS00338; SOMATOTROPIN_2; 1.
SQ   SEQUENCE   217 AA;  25293 MW;  741745A1B75C053E CRC64;

  Query Match             74.0%;  Score 348;  DB 6;  Length 217;
  Best Local Similarity   75.8%;  Pred. No. 2.9e-31;
  Matches   69;  Conservative    8;  Mismatches   14;  Indels    0;  Gaps    0;

Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
              || ||||||| :||||||:|||:||||||| ||  |||:||| ||:||:  | |||||||
Db         27 FPRIPLSRLFGDAMLRAHQLHQVAFDTYQELEENCIPKKQKYFFLRNPKNFLCFSESIPT 86

Qy         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              | |:||   ||:|||| ||||||||||||||
Db         87 PFNKEEVLAKSSLELLHISLLLIQSWLEPVQ 117


RESULT 12
O14643
ID   O14643      PRELIMINARY;      PRT;   202 AA.
AC   O14643;
DT   01-JAN-1998 (TrEMBLrel. 05, Created)
DT   01-JAN-1998 (TrEMBLrel. 05, Last sequence update)
DT   01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE   Placental growth hormone 20kDa isoform precursor.
GN   HGH-V.
OS   Homo sapiens (Human).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX   NCBI_TaxID=9606;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Term placenta;
RX   MEDLINE=98373737; PubMed=9709963;
RA   Boguszewski C.L., Svensson P.A., Jansson T., Clark R.,
RA   Carlsson L.M.S., Carlsson B.;
RT   "Cloning of two novel growth hormone transcripts expressed in human
RT   placenta.";
RL   J. Clin. Endocrinol. Metab. 83:2878-2885(1998).
DR   EMBL; AF006060; AAB71828.1; -.
DR   HSSP; P01241; 1A22.
DR   GO; GO:0005576; C:extracellular; IEA.
DR   GO; GO:0005179; F:hormone activity; IEA.
DR   InterPro; IPR001400; Somatotropin.
DR   Pfam; PF00103; hormone; 1.
DR   PRINTS; PR00836; SOMATOTROPIN.
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DR   PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR   PROSITE; PS00338; SOMATOTROPIN_2; 1.
KW   Signal.
FT   SIGNAL        1     26       POTENTIAL.
SQ   SEQUENCE   202 AA;  23128 MW;  38B64D011A9197C6 CRC64;

  Query Match             71.6%;  Score 336.5;  DB 4;  Length 202;
  Best Local Similarity   76.9%;  Pred. No. 5.4e-30;
  Matches   70;  Conservative    3;  Mismatches    3;  Indels   15;  Gaps    1;

Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
              |||||||||||||||| ||:|||:||||||               |||||| |||||||
Db         27 FPTIPLSRLFDNAMLRARRLYQLAYDTYQEF---------------NPQTSLCFSESIPT 71

Qy         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |||| :|||||||||||||||||||||||||
Db         72 PSNRVKTQQKSNLELLRISLLLIQSWLEPVQ 102


RESULT 13
Q8MI74
ID   Q8MI74      PRELIMINARY;      PRT;   217 AA.
AC   Q8MI74;
DT   01-OCT-2002 (TrEMBLrel. 22, Created)
DT   01-OCT-2002 (TrEMBLrel. 22, Last sequence update)
DT   01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE   Growth hormone-like protein 6 precursor.
GN   GHLP6.
OS   Callithrix jacchus (Common marmoset).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Platyrrhini; Callitrichidae; Callithrix.
OX   NCBI_TaxID=9483;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Wallis O.C., Wallis M.;
RT   "Characterisation of the GH gene cluster in a new-world monkey, the
RT   marmoset (Callithrix jacchus).";
RL   J. Mol. Endocrinol. 0:0-0(2002).
DR   EMBL; AJ489811; CAD34012.1; -.
DR   GO; GO:0005576; C:extracellular; IEA.
DR   GO; GO:0005179; F:hormone activity; IEA.
DR   InterPro; IPR001400; Somatotropin.
DR   Pfam; PF00103; hormone; 1.
DR   PRINTS; PR00836; SOMATOTROPIN.
DR   PROSITE; PS00338; SOMATOTROPIN_2; 1.
KW   Signal.
FT   SIGNAL        1     26       POTENTIAL.
FT   CHAIN        27    217       GROWTH HORMONE-LIKE PROTEIN 6.
SQ   SEQUENCE   217 AA;  25177 MW;  5ECF148798278F1A CRC64;

  Query Match             67.7%;  Score 318;  DB 6;  Length 217;
  Best Local Similarity   68.9%;  Pred. No. 7.3e-28;
  Matches   62;  Conservative   13;  Mismatches   15;  Indels    0;  Gaps    0;

Qy          3 PTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPTP 62
              | ||||||| :||||| :|| || :||:|||:  :|||||| ||:||:| : ||||||||
Db         28 PRIPLSRLFGDAMLRARQLHHLALETYREFEKNCVPKEQKYFFLRNPETFVCFSESIPTP 87
```

```
Qy          63 SNREETQQKSNLELLRISLLLIQSWLEPVQ 92
               ::||   |||:||| ||||||||||||:|
Db          88 FHKEEMLGKSNVELLHISLLLIQSWLEPMQ 117
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RESULT 14
O70615
ID   O70615   PRELIMINARY;   PRT;   216 AA.
AC   O70615;
DT   01-AUG-1998 (TrEMBLrel. 07, Created)
DT   01-AUG-1998 (TrEMBLrel. 07, Last sequence update)
DT   01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE   Growth hormone precursor.
OS   Spalax leucodon ehrenbergi (Ehrenberg's mole rat).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Spalacinae;
OC   Nannospalax.
OX   NCBI_TaxID=30637;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=99124645; PubMed=9924177;
RA   Lioupis A., Nevo E., Wallis M.;
RT   "Cloning and characterisation of the gene encoding mole rat (Spalax
RT   ehrenbergi) growth hormone.";
RL   J. Mol. Endocrinol. 22:29-36(1999).
DR   EMBL; AJ005819; CAA06716.1; -.
DR   HSSP; P01241; 1AXI.
DR   GO; GO:0005576; C:extracellular; IEA.
DR   GO; GO:0005179; F:hormone activity; IEA.
DR   InterPro; IPR001400; Somatotropin.
DR   Pfam; PF00103; hormone; 1.
DR   PRINTS; PR00836; SOMATOTROPIN.
DR   PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR   PROSITE; PS00338; SOMATOTROPIN_2; 1.
KW   Signal.
FT   SIGNAL   1   26   POTENTIAL.
FT   CHAIN   27   216   GROWTH HORMONE.
SQ   SEQUENCE   216 AA; 24627 MW; EEAB8A523BA0ADFE CRC64;

  Query Match   65.2%; Score 306.5; DB 11; Length 216;
  Best Local Similarity   65.9%; Pred. No. 1.4e-26;
  Matches   60; Conservative   13; Mismatches   17; Indels   1; Gaps   1;

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Qy           2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
               || :||| || ||:|||  ||||| |||:||| ||||: |:|| :|| | :  |||:||
Db          27 FPAMPLSNLFANAVLRAQHLHQLAADTYKEFERAYIPEGQRYS-IQNAQAAFCFSETIPA 85

Qy          62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
               |: :|| ||:|::|||| ||||||||| |||
Db          86 PTGKEEAQQRSDMELLRFSLLLIQSWLGPVQ 116
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RESULT 15
Q8MI73
ID   Q8MI73   PRELIMINARY;   PRT;   216 AA.
AC   Q8MI73;

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DT   01-OCT-2002 (TrEMBLrel. 22, Created)
DT   01-OCT-2002 (TrEMBLrel. 22, Last sequence update)
DT   01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE   Growth hormone precursor.
GN   GH.
OS   Delphinus delphis (Saddleback dolphin) (Black sea dolphin).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Cetartiodactyla; Cetacea; Odontoceti; Delphinidae;
OC   Delphinus.
OX   NCBI_TaxID=9728;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Liver;
RA   Maniou Z., Wallis O.C., Wallis M.;
RT   "Cloning and characterisation of the GH gene from the common dolphin
RT   (Delphinus delphis).";
RL   Submitted (JUN-2002) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AJ492191; CAD37292.1; -.
DR   GO; GO:0005576; C:extracellular; IEA.
DR   GO; GO:0005179; F:hormone activity; IEA.
DR   InterPro; IPR001400; Somatotropin.
DR   Pfam; PF00103; hormone; 1.
DR   PRINTS; PR00836; SOMATOTROPIN.
DR   PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR   PROSITE; PS00338; SOMATOTROPIN_2; 1.
KW   Signal.
FT   SIGNAL        1     26       POTENTIAL.
FT   CHAIN        27    216       GROWTH HORMONE.
SQ   SEQUENCE   216 AA;  24509 MW;  1EC467A84CCFEB02 CRC64;

  Query Match             64.1%;  Score 301.5;  DB 6;  Length 216;
  Best Local Similarity   64.8%;  Pred. No. 5.3e-26;
  Matches   59;  Conservative   14;  Mismatches   17;  Indels    1;  Gaps    1;

Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
              || :||| || ||:|||  ||||| |||:||| ||||: |:|| :|| | :  |||:||
Db         27 FPAMPLSSLFANAVLRAQHLHQLAADTYKEFERAYIPEGQRYS-IQNTQAAFCFSETIPA 85

Qy         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |: ::| ||:|::|||| ||||||||| |||
Db         86 PTGKDEAQQRSDVELLRFSLLLIQSWLGPVQ 116


Search completed: July 15, 2004, 16:40:48
Job time : 32.5771 secs
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GenCore version 5.1.6
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OM protein - protein search, using sw model

Run on: July 15, 2004, 16:28:49 ; Search time 6.35075 Seconds
(without alignments)
754.314 Million cell updates/sec

Title: US-09-423-100-2
Perfect score: 470
Sequence: 1 MFPTIPLSRLFDNAMLRAHR.....NLELLRISLLLIQSWLEPVQ 92

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 141681 seqs, 52070155 residues

Total number of hits satisfying chosen parameters: 141681

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : SwissProt_42:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	460	97.9	217	1	SOMA_HUMAN	P01241 homo sapien
2	460	97.9	217	1	SOMA_MACMU	P33093 macaca mula
3	460	97.9	217	1	SOMA_PANTR	P58756 pan troglod
4	433	92.1	217	1	SOMA_SAIBB	P58343 saimiri bol
5	432	91.9	217	1	SOMA_CALJA	Q9gmb3 callithrix
6	430	91.5	217	1	SOM2_PANTR	P58757 pan troglod
7	422	89.8	217	1	SOM2_HUMAN	P01242 homo sapien
8	396	84.3	217	1	SOM2_MACMU	Q07370 macaca mula
9	381	81.1	217	1	PLL_HUMAN	P01243 homo sapien
10	310.5	66.1	216	1	SOMA_MESAU	P37886 mesocricetu
11	307.5	65.4	190	1	SOMA_BALBO	P33092 balaenopter
12	304.5	64.8	216	1	SOMA_MOUSE	P06880 mus musculu
13	302.5	64.4	216	1	SOMA_HORSE	P01245 equus cabal
14	302.5	64.4	216	1	SOMA_RABIT	P46407 oryctolagus
15	302.5	64.4	216	1	SOMA_RAT	P01244 rattus norv
16	302.5	64.4	217	1	SOMA_GALSE	Q9gka1 galago sene
17	302.5	64.4	217	1	SOMA_NYCPY	Q9gmb2 nycticebus

18	301.5	64.1	190	1	SOMA_LOXAF	P20392 loxodonta a
19	301.5	64.1	216	1	SOMA_CANFA	P33711 canis famil
20	301.5	64.1	216	1	SOMA_FELCA	P46404 felis silve
21	301.5	64.1	216	1	SOMA_PIG	P01248 sus scrofa
22	299.5	63.7	216	1	SOMA_MUSVI	P19795 mustela vis
23	297.5	63.3	190	1	SOMA_LAMPA	P37885 lama guanic
24	295.5	62.9	190	1	SOMA_VULVU	P10766 vulpes vulp
25	291.5	62.0	215	1	SOMA_MONDO	Q9gl60 monodelphis
26	291.5	62.0	215	1	SOMA_TRIVU	O62754 trichosurus
27	289.5	61.6	217	1	SOMA_BOVIN	P01246 bos taurus
28	289.5	61.6	217	1	SOMA_CEREL	P56437 cervus elap
29	289.5	61.6	217	1	SOMA_SHEEP	P01247 ovis aries
30	282.5	60.1	217	1	SOMA_BUBBU	O18938 bubalus bub
31	278.5	59.3	216	1	SOMA_MELGA	P22077 meleagris g
32	275.5	58.6	216	1	SOMA_CHICK	P08998 gallus gall
33	274.5	58.4	217	1	SOMA_STRCA	Q9pwg3 struthio ca
34	272.5	58.0	190	1	SOMA_CRONO	P55755 crocodylus
35	268.5	57.1	191	1	SOMA_CHEMY	P34005 chelonia my
36	261	55.5	216	1	SOMA_ANAPL	P11228 anas platyr
37	257.5	54.8	190	1	SOM1_ACIGU	P26773 acipenser g
38	257.5	54.8	190	1	SOM2_ACIGU	P26774 acipenser g
39	247.5	52.7	211	1	SOMA_LEPOS	P79885 lepisosteus
40	239.5	51.0	214	1	SOMA_XENLA	P12855 xenopus lae
41	238.5	50.7	215	1	SOMA_RANCA	P10813 rana catesb
42	226.5	48.2	213	1	SOMA_BUFMA	O73849 bufo marinu
43	225.5	48.0	183	1	SOMA_PRIGL	P34006 prionace gl
44	219.5	46.7	208	1	SOMB_XENLA	P12856 xenopus lae
45	218.5	46.5	206	1	SOMA_PROAN	O73848 protopterus

ALIGNMENTS

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RESULT 1
SOMA_HUMAN
ID   SOMA_HUMAN      STANDARD;      PRT;   217 AA.
AC   P01241; Q14405; Q16631; Q9HBZ1; Q9UMJ7; Q9UNL5;
DT   21-JUL-1986 (Rel. 01, Created)
DT   01-MAR-1992 (Rel. 21, Last sequence update)
DT   10-OCT-2003 (Rel. 42, Last annotation update)
DE   Somatotropin precursor (Growth hormone) (GH) (GH-N) (Pituitary growth
DE   hormone) (Growth hormone 1).
GN   GH1.
OS   Homo sapiens (Human).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX   NCBI_TaxID=9606;
RN   [1]
RP   SEQUENCE FROM N.A. (ISOFORM 1).
RX   MEDLINE=80034477; PubMed=386281;
RA   Roskam W., Rougeon F.;
RT   "Molecular cloning and nucleotide sequence of the human growth
RT   hormone structural gene.";
RL   Nucleic Acids Res. 7:305-320(1979).
RN   [2]
RP   SEQUENCE FROM N.A. (ISOFORM 1).
RX   MEDLINE=79203293; PubMed=377496;
```

RA Martial J.A., Hallewell R.A., Baxter J.D., Goodman H.M.;
RT "Human growth hormone: complementary DNA cloning and expression in
RT bacteria.";
RL Science 205:602-607(1979).
RN [3]
RP SEQUENCE FROM N.A. (ISOFORM 1), AND POSSIBLE ALTERNATIVE SPLICING.
RX MEDLINE=82014939; PubMed=6269091;
RA Denoto F.M., Moore D.D., Goodman H.M.;
RT "Human growth hormone DNA sequence and mRNA structure: possible
RT alternative splicing.";
RL Nucleic Acids Res. 9:3719-3730(1981).
RN [4]
RP SEQUENCE FROM N.A.
RX MEDLINE=83182010; PubMed=7169009;
RA Seeburg P.H.;
RT "The human growth hormone gene family: nucleotide sequences show
RT recent divergence and predict a new polypeptide hormone.";
RL DNA 1:239-249(1982).
RN [5]
RP SEQUENCE FROM N.A.
RX MEDLINE=89307277; PubMed=2744760;
RA Chen E.Y., Liao Y.C., Smith D.H., Barrera-Saldana H.A.,
RA Gelinas R.E., Seeburg P.H.;
RT "The human growth hormone locus: nucleotide sequence, biology, and
RT evolution.";
RL Genomics 4:479-497(1989).
RN [6]
RP SEQUENCE FROM N.A. (ISOFORM 3).
RC TISSUE=Pituitary;
RA Gu J., Huang Q.-H., Li N., Xu S.-H., Han Z.-G., Fu G., Chen Z.;
RT "A novel gene expressed in human pituitary.";
RL Submitted (SEP-1999) to the EMBL/GenBank/DDBJ databases.
RN [7]
RP SEQUENCE FROM N.A. (ISOFORM 4).
RC TISSUE=Pituitary;
RX MEDLINE=20402571; PubMed=10931946;
RA Hu R.-M., Han Z.-G., Song H.-D., Peng Y.-D., Huang Q.-H., Ren S.-X.,
RA Gu Y.-J., Huang C.-H., Li Y.-B., Jiang C.-L., Fu G., Zhang Q.-H.,
RA Gu B.-W., Dai M., Mao Y.-F., Gao G.-F., Rong R., Ye M., Zhou J.,
RA Xu S.-H., Gu J., Shi J.-X., Jin W.-R., Zhang C.-K., Wu T.-M.,
RA Huang G.-Y., Chen Z., Chen M.-D., Chen J.-L.;
RT "Gene expression profiling in the human hypothalamus-pituitary-adrenal
RT axis and full-length cDNA cloning.";
RL Proc. Natl. Acad. Sci. U.S.A. 97:9543-9548(2000).
RN [8]
RP SEQUENCE OF 1-26 FROM N.A.
RX MEDLINE=86137393; PubMed=3912261;
RA Gray G.L., Baldridge J.S., McKeown K.S., Heyneker H.L., Chang C.N.;
RT "Periplasmic production of correctly processed human growth hormone in
RT Escherichia coli: natural and bacterial signal sequences are
RT interchangeable.";
RL Gene 39:247-254(1985).
RN [9]
RP SEQUENCE OF 27-217.
RX MEDLINE=69289202; PubMed=5810834;
RA Li C.H., Dixon J.S., Liu W.-K.;
RT "Human pituitary growth hormone. XIX. The primary structure of the

RT hormone.";
RL Arch. Biochem. Biophys. 133:70-91(1969).
RN [10]
RP SEQUENCE OF 27-217, AND REVISIONS.
RX MEDLINE=72143935; PubMed=5144027;
RA Li C.H., Dixon J.S.;
RT "Human pituitary growth hormone. 32. The primary structure of the
RT hormone: revision.";
RL Arch. Biochem. Biophys. 146:233-236(1971).
RN [11]
RP REVISION.
RX MEDLINE=73092028; PubMed=4675454;
RA Bewley T.A., Dixon J.S., Li C.H.;
RT "Sequence comparison of human pituitary growth hormone, human
RT chorionic somatomammotropin, and ovine pituitary growth and
RT lactogenic hormones.";
RL Int. J. Pept. Protein Res. 4:281-287(1972).
RN [12]
RP SEQUENCE OF 27-61 AND 102-124.
RX MEDLINE=71139765; PubMed=5279046;
RA Niall H.D.;
RT "Revised primary structure for human growth hormone.";
RL Nature New Biol. 230:90-91(1971).
RN [13]
RP REVISIONS TO 119-120 AND 157-159.
RX MEDLINE=71153968; PubMed=5279528;
RA Niall H.D., Hogan M.L., Sauer R., Rosenblum I.Y., Greenwood F.C.;
RT "Sequences of pituitary and placental lactogenic and growth hormones:
RT evolution from a primordial peptide by gene reduplication.";
RL Proc. Natl. Acad. Sci. U.S.A. 68:866-869(1971).
RN [14]
RP REVISION.
RA Niall H.D.;
RT "The chemistry of the human lactogenic hormones.";
RL (In) Griffiths K. (eds.);
RL Prolactin and carcinogenesis, Proc. fourth tenovus workshop prolactin,
RL pp.13-20, Alpha Omega Alpha Press, Cardiff (1972).
RN [15]
RP SEQUENCE OF 27-79 (ISOFORM 2).
RX MEDLINE=81117361; PubMed=7462247;
RA Chapman G.E., Rogers K.M., Brittain T., Bradshaw R.A., Bates O.J.,
RA Turner C., Cary P.D., Crane-Robinson C.;
RT "The 20,000 molecular weight variant of human growth hormone.
RT Preparation and some physical and chemical properties.";
RL J. Biol. Chem. 256:2395-2401(1981).
RN [16]
RP SEQUENCE OF 46-80 (ISOFORM 2).
RX MEDLINE=80130196; PubMed=7356479;
RA Lewis U.J., Bonewald L.F., Lewis L.J.;
RT "The 20,000-dalton variant of human growth hormone: location of the
RT amino acid deletions.";
RL Biochem. Biophys. Res. Commun. 92:511-516(1980).
RN [17]
RP DEAMIDATION OF GLN-163 AND ASN-178.
RX MEDLINE=82052997; PubMed=7028740;
RA Lewis U.J., Singh R.N., Bonewald L.F., Seavey B.K.;
RT "Altered proteolytic cleavage of human growth hormone as a result of

RT deamidation.";
RL J. Biol. Chem. 256:11645-11650(1981).
RN [18]
RP REVIEW.
RX MEDLINE=99321812; PubMed=10393484;
RA Baumann G.;
RT "Growth hormone heterogeneity in human pituitary and plasma.";
RL Horm. Res. 51 Suppl. 1:2-6(1999).
RN [19]
RP 3D-STRUCTURE MODELING.
RX MEDLINE=88190073; PubMed=3447173;
RA Cohen F.E., Kuntz I.D.;
RT "Prediction of the three-dimensional structure of human growth
RT hormone.";
RL Proteins 2:162-166(1987).
RN [20]
RP X-RAY CRYSTALLOGRAPHY (2.8 ANGSTROMS).
RX MEDLINE=92196577; PubMed=1549776;
RA de Vos A.M., Ultsch M., Kossiakoff A.A.;
RT "Human growth hormone and extracellular domain of its receptor:
RT crystal structure of the complex.";
RL Science 255:306-312(1992).
RN [21]
RP X-RAY CRYSTALLOGRAPHY (2.9 ANGSTROMS).
RX MEDLINE=95075462; PubMed=7984244;
RA Somers W., Ultsch M., de Vos A.M., Kossiakoff A.A.;
RT "The X-ray structure of a growth hormone-prolactin receptor complex.";
RL Nature 372:478-481(1994).
RN [22]
RP X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS).
RA Chantalat L., Chirgadze N.Y., Jones N., Korber F., Navaza J.,
RA Pavlovsk A.G., Wlodawer A.;
RT "The crystal-structure of wild-type growth-hormone at 2.5-A
RT resolution.";
RL Protein Pept. Lett. 2:333-340(1995).
RN [23]
RP X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS).
RX MEDLINE=97113023; PubMed=8943276;
RA Sundstroem M., Lundqvist T., Roedin J., Giebel L.B., Milligan D.,
RA Norstedt G.;
RT "Crystal structure of an antagonist mutant of human growth hormone,
RT G120R, in complex with its receptor at 2.9-A resolution.";
RL J. Biol. Chem. 271:32197-32203(1996).
RN [24]
RP VARIANT KOWARSKI SYNDROME CYS-103.
RX MEDLINE=96150232; PubMed=8552145;
RA Takahashi Y., Kaji H., Okimura Y., Goji K., Abe H., Chihara K.;
RT "Short stature caused by a mutant growth hormone.";
RL New Engl. J. Med. 334:432-436(1996).
RN [25]
RP ERRATUM.
RA Takahashi Y., Kaji H., Okimura Y., Goji K., Abe H., Chihara K.;
RL New Engl. J. Med. 334:1207-1207(1996).
RN [26]
RP VARIANT KOWARSKI SYNDROME GLY-138.
RX MEDLINE=97426478; PubMed=9276733;
RA Takahashi Y., Shirono H., Arisaka O., Takahashi K., Yagi T., Koga J.,

```
RA   Kaji H., Okimura Y., Abe H., Tanaka T., Chihara K.;
RT   "Biologically inactive growth hormone caused by an amino acid
RT   substitution.";
RL   J. Clin. Invest. 100:1159-1165(1997).
RN   [27]
RP   VARIANT CYS-105.
RX   MEDLINE=99318093; PubMed=10391209;
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  Query Match             97.9%;  Score 460;  DB 1;  Length 217;
  Best Local Similarity   98.9%;  Pred. No. 3.2e-41;
  Matches   90;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
              ||||||||||||||||||||||||||||||||||||||||||||||||||| |||||||
Db         27 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 86

Qy         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
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Db         87 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 117
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```
RESULT 2
SOMA_MACMU
ID   SOMA_MACMU     STANDARD;      PRT;   217 AA.
AC   P33093;
DT   01-OCT-1993 (Rel. 27, Created)
DT   01-OCT-1994 (Rel. 30, Last sequence update)
DT   28-FEB-2003 (Rel. 41, Last annotation update)
DE   Somatotropin precursor (Growth hormone) (GH) (GH-N) (Pituitary growth
DE   hormone) (Growth hormone 1).
GN   GH1.
OS   Macaca mulatta (Rhesus macaque).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Cercopithecidae;
OC   Cercopithecinae; Macaca.
OX   NCBI_TaxID=9544;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=94008724; PubMed=8404617;
RA   Golos T.G., Durning M., Fisher J.M., Fowler P.D.;
RT   "Cloning of four growth hormone/chorionic somatomammotropin-related
RT   complementary deoxyribonucleic acids differentially expressed during
RT   pregnancy in the rhesus monkey placenta.";
RL   Endocrinology 133:1744-1752(1993).
RN   [2]
RP   SEQUENCE OF 27-217.
RX   MEDLINE=86129460; PubMed=3080959;
RA   Li C.H., Chung D., Lahm H.W., Stein S.;
RT   "The primary structure of monkey pituitary growth hormone.";
RL   Arch. Biochem. Biophys. 245:287-291(1986).
CC   -!- FUNCTION: Plays an important role in growth control. Its major
CC       role in stimulating body growth is to stimulate the liver and
CC       other tissues to secrete IGF-1. It stimulates both the
CC       differentiation and proliferation of myoblasts. It also stimulates
CC       amino acid uptake and protein synthesis in muscle and other
CC       tissues.
CC   -!- SUBCELLULAR LOCATION: Secreted.
```

```
CC   -!- SIMILARITY: Belongs to the somatotropin/prolactin family.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; L16556; AAA18842.1; -.
DR   PIR; I67410; I67410.
DR   HSSP; P01241; 1AXI.
DR   InterPro; IPR001400; Somatotropin.
DR   Pfam; PF00103; hormone; 1.
DR   PRINTS; PR00836; SOMATOTROPIN.
DR   PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR   PROSITE; PS00338; SOMATOTROPIN_2; 1.
KW   Hormone; Pituitary; Signal.
FT   SIGNAL        1     26
FT   CHAIN        27    217       SOMATOTROPIN.
FT   DISULFID     79    191       BY SIMILARITY.
FT   DISULFID    208    215       BY SIMILARITY.
FT   CONFLICT    100    100       E -> Q (IN REF. 2).
FT   CONFLICT    179    179       N -> D (IN REF. 2).
SQ   SEQUENCE   217 AA;  24913 MW;  2C5180341EEC46D0 CRC64;

  Query Match             97.9%;  Score 460;  DB 1;  Length 217;
  Best Local Similarity   98.9%;  Pred. No. 3.2e-41;
  Matches   90;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
              ||||||||||||||||||||||||||||||||||||||||||||||||||| |||||||
Db         27 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 86

Qy         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |||||||||||||||||||||||||||||||
Db         87 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 117


RESULT 3
SOMA_PANTR
ID   SOMA_PANTR     STANDARD;      PRT;   217 AA.
AC   P58756;
DT   28-FEB-2003 (Rel. 41, Created)
DT   28-FEB-2003 (Rel. 41, Last sequence update)
DT   28-FEB-2003 (Rel. 41, Last annotation update)
DE   Somatotropin precursor (Growth hormone) (GH) (GH-N) (Pituitary growth
DE   hormone) (Growth hormone 1).
GN   GH1.
OS   Pan troglodytes (Chimpanzee).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Pan.
OX   NCBI_TaxID=9598;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Revol A., Esquivel D., Santiago D., Barrera-Saldana H.;
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```
RT   "Independent duplication of the growth hormone gene in three
RT   Anthropoidean lineages.";
RL   Submitted (APR-2001) to the EMBL/GenBank/DDBJ databases.
CC   -!- FUNCTION: Plays an important role in growth control. Its major
CC       role in stimulating body growth is to stimulate the liver and
CC       other tissues to secrete IGF-1. It stimulates both the
CC       differentiation and proliferation of myoblasts. It also stimulates
CC       amino acid uptake and protein synthesis in muscle and other
CC       tissues (By similarity).
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: Belongs to the somatotropin/prolactin family.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; AF374232; AAL72284.1; -.
DR   InterPro; IPR001400; Somatotropin.
DR   Pfam; PF00103; hormone; 1.
DR   PRINTS; PR00836; SOMATOTROPIN.
DR   PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR   PROSITE; PS00338; SOMATOTROPIN_2; 1.
KW   Hormone; Pituitary; Signal.
FT   SIGNAL        1     26       BY SIMILARITY.
FT   CHAIN        27    217       SOMATOTROPIN.
FT   DISULFID     79    191       BY SIMILARITY.
FT   DISULFID    208    215       BY SIMILARITY.
SQ   SEQUENCE   217 AA;  24843 MW;  FEA295EDE0518674 CRC64;

  Query Match             97.9%;  Score 460;  DB 1;  Length 217;
  Best Local Similarity   98.9%;  Pred. No. 3.2e-41;
  Matches   90;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
              |||||||||||||||||||||||||||||||||||||||||||||||||||| |||||||
Db         27 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 86

Qy         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |||||||||||||||||||||||||||||||
Db         87 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 117


RESULT 4
SOMA_SAIBB
ID   SOMA_SAIBB     STANDARD;      PRT;   217 AA.
AC   P58343;
DT   28-FEB-2003 (Rel. 41, Created)
DT   28-FEB-2003 (Rel. 41, Last sequence update)
DT   28-FEB-2003 (Rel. 41, Last annotation update)
DE   Somatotropin precursor (Growth hormone).
GN   GH1.
OS   Saimiri boliviensis boliviensis (Bolivian squirrel monkey).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
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OC   Mammalia; Eutheria; Primates; Platyrrhini; Cebidae; Cebinae; Saimiri.
OX   NCBI_TaxID=39432;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=21265430; PubMed=11371582;
RA   Liu J.C., Makova K.D., Adkins R.M., Gibson S., Li W.H.;
RT   "Episodic evolution of growth hormone in primates and emergence of the
RT   species specificity of human growth hormone receptor.";
RL   Mol. Biol. Evol. 18:945-953(2001).
CC   -!- FUNCTION: Plays an important role in growth control. Its major
CC       role in stimulating body growth is to stimulate the liver and
CC       other tissues to secrete IGF-1. It stimulates both the
CC       differentiation and proliferation of myoblasts. It also stimulates
CC       amino acid uptake and protein synthesis in muscle and other
CC       tissues (By similarity).
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: Belongs to the somatotropin/prolactin family.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
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CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; AF339060; AAK62287.1; -.
DR   InterPro; IPR001400; Somatotropin.
DR   Pfam; PF00103; hormone; 1.
DR   PRINTS; PR00836; SOMATOTROPIN.
DR   PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR   PROSITE; PS00338; SOMATOTROPIN_2; 1.
KW   Hormone; Pituitary; Signal.
FT   SIGNAL        1     26       BY SIMILARITY.
FT   CHAIN        27    217       SOMATOTROPIN.
FT   DISULFID     79    191       BY SIMILARITY.
FT   DISULFID    208    215       BY SIMILARITY.
SQ   SEQUENCE   217 AA;  24864 MW;  9515289992C529F7 CRC64;

  Query Match             92.1%;  Score 433;  DB 1;  Length 217;
  Best Local Similarity   91.2%;  Pred. No. 2.2e-38;
  Matches   83;  Conservative    5;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
              ||||||||| ||||||||||||||||||||||||||||||||||||||||| |||||||
Db         27 FPTIPLSRLLDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 86

Qy         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |::::|||||||||||||||:||||| ||||
Db         87 PASKKETQQKSNLELLRISLILIQSWFEPVQ 117


RESULT 5
SOMA_CALJA
ID   SOMA_CALJA     STANDARD;      PRT;   217 AA.
AC   Q9GMB3;
DT   28-FEB-2003 (Rel. 41, Created)
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DT   28-FEB-2003 (Rel. 41, Last sequence update)
DT   28-FEB-2003 (Rel. 41, Last annotation update)
DE   Somatotropin precursor (Growth hormone).
GN   GH1.
OS   Callithrix jacchus (Common marmoset).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Platyrrhini; Callitrichidae;
OC   Callithrix.
OX   NCBI_TaxID=9483;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Wallis O.C., Wallis M.;
RT   "Cloning and characterisation of a putative growth hormone encoding
RT   gene from the marmoset (Callithrix jacchus).";
RL   Submitted (AUG-2000) to the EMBL/GenBank/DDBJ databases.
CC   -!- FUNCTION: Plays an important role in growth control. Its major
CC       role in stimulating body growth is to stimulate the liver and
CC       other tissues to secrete IGF-1. It stimulates both the
CC       differentiation and proliferation of myoblasts. It also stimulates
CC       amino acid uptake and protein synthesis in muscle and other
CC       tissues (By similarity).
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: Belongs to the somatotropin/prolactin family.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
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CC   use by non-profit institutions as long as its content is in no way
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CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; AJ297563; CAC03481.1; -.
DR   HSSP; P01241; 1A22.
DR   InterPro; IPR001400; Somatotropin.
DR   Pfam; PF00103; hormone; 1.
DR   PRINTS; PR00836; SOMATOTROPIN.
DR   PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR   PROSITE; PS00338; SOMATOTROPIN_2; 1.
KW   Hormone; Pituitary; Signal.
FT   SIGNAL        1     26       BY SIMILARITY.
FT   CHAIN        27    217       SOMATOTROPIN.
FT   DISULFID     79    191       BY SIMILARITY.
FT   DISULFID    208    215       BY SIMILARITY.
SQ   SEQUENCE   217 AA;  24959 MW;  E102151A12CE6192 CRC64;

  Query Match             91.9%;  Score 432;  DB 1;  Length 217;
  Best Local Similarity   91.2%;  Pred. No. 2.8e-38;
  Matches   83;  Conservative    5;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
              ||||||||| ||||||||||||||||||||||||||||||||||||| |||||||
Db         27 FPTIPLSRLLDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 86

Qy         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |::::|||||||||||||:|||||||| ||||
Db         87 PASKKETQQKSNLELLRMSLLLIQSWFEPVQ 117
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RESULT 6
SOM2_PANTR
ID   SOM2_PANTR     STANDARD;      PRT;   217 AA.
AC   P58757;
DT   28-FEB-2003 (Rel. 41, Created)
DT   28-FEB-2003 (Rel. 41, Last sequence update)
DT   28-FEB-2003 (Rel. 41, Last annotation update)
DE   Growth hormone variant precursor (GH-V) (Placenta-specific growth
DE   hormone) (Growth hormone 2).
GN   GH2.
OS   Pan troglodytes (Chimpanzee).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Pan.
OX   NCBI_TaxID=9598;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Revol A., Esquivel D., Santiago D., Barrera-Saldana H.;
RT   "Independent duplication of the growth hormone gene in three
RT   Anthropoidean lineages.";
RL   Submitted (APR-2001) to the EMBL/GenBank/DDBJ databases.
CC   -!- FUNCTION: Plays an important role in growth control. Its major
CC       role in stimulating body growth is to stimulate the liver and
CC       other tissues to secrete IGF-1. It stimulates both the
CC       differentiation and proliferation of myoblasts. It also stimulates
CC       amino acid uptake and protein synthesis in muscle and other
CC       tissues.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- TISSUE SPECIFICITY: Expressed in the placenta.
CC   -!- SIMILARITY: Belongs to the somatotropin/prolactin family.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
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CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; AF374233; AAL72285.1; -.
DR   InterPro; IPR001400; Somatotropin.
DR   Pfam; PF00103; hormone; 1.
DR   PRINTS; PR00836; SOMATOTROPIN.
DR   PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR   PROSITE; PS00338; SOMATOTROPIN_2; 1.
KW   Hormone; Placenta; Signal; Glycoprotein.
FT   SIGNAL        1     26       BY SIMILARITY.
FT   CHAIN        27    217       GROWTH HORMONE VARIANT.
FT   DISULFID     79    191       BY SIMILARITY.
FT   DISULFID    208    215       BY SIMILARITY.
SQ   SEQUENCE   217 AA;  24990 MW;  1592A429075677DE CRC64;

  Query Match             91.5%;  Score 430;  DB 1;  Length 217;
  Best Local Similarity   93.4%;  Pred. No. 4.5e-38;
  Matches   85;  Conservative    3;  Mismatches    3;  Indels    0;  Gaps    0;
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Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
              ||||||||||||||||||||:|||:|||||||||| |||||||||||||| |||||||
Db         27 FPTIPLSRLFDNAMLRAHRLYQLAYDTYQEFEEAYILKEQKYSFLQNPQTSLCFSESIPT 86

Qy         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |||| :|||||||||||||||||||||||||
Db         87 PSNRVKTQQKSNLELLRISLLLIQSWLEPVQ 117


RESULT 7
SOM2_HUMAN
ID   SOM2_HUMAN     STANDARD;      PRT;   217 AA.
AC   P01242; P09587;
DT   21-JUL-1986 (Rel. 01, Created)
DT   28-FEB-2003 (Rel. 41, Last sequence update)
DT   10-OCT-2003 (Rel. 42, Last annotation update)
DE   Growth hormone variant precursor (GH-V) (Placenta-specific growth
DE   hormone) (Growth hormone 2).
GN   GH2.
OS   Homo sapiens (Human).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX   NCBI_TaxID=9606;
RN   [1]
RP   SEQUENCE FROM N.A. (ISOFORM 1).
RX   MEDLINE=83182010; PubMed=7169009;
RA   Seeburg P.H.;
RT   "The human growth hormone gene family: nucleotide sequences show
RT   recent divergence and predict a new polypeptide hormone.";
RL   DNA 1:239-249(1982).
RN   [2]
RP   SEQUENCE FROM N.A. (ISOFORMS 1 AND 2).
RX   MEDLINE=88243769; PubMed=3379057;
RA   Cooke N.E., Ray J., Emery J.G., Liebhaber S.A.;
RT   "Two distinct species of human growth hormone-variant mRNA in the
RT   human placenta predict the expression of novel growth hormone
RT   proteins.";
RL   J. Biol. Chem. 263:9001-9006(1988).
RN   [3]
RP   SEQUENCE FROM N.A. (ISOFORM 1).
RX   MEDLINE=89024984; PubMed=2460050;
RA   Igout A., Scippo M.L., Frankenne F., Hennen G.;
RT   "Cloning and nucleotide sequence of placental hGH-V cDNA.";
RL   Arch. Int. Physiol. Biochim. 96:63-67(1988).
RN   [4]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=89307277; PubMed=2744760;
RA   Chen E.Y., Liao Y.C., Smith D.H., Barrera-Saldana H.A.,
RA   Gelinas R.E., Seeburg P.H.;
RT   "The human growth hormone locus: nucleotide sequence, biology, and
RT   evolution.";
RL   Genomics 4:479-497(1989).
RN   [5]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Placenta;
RX   MEDLINE=22388257; PubMed=12477932;
RA   Strausberg R.L., Feingold E.A., Grouse L.H., Derge J.G.,
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RA   Klausner R.D., Collins F.S., Wagner L., Shenmen C.M., Schuler G.D.,
RA   Altschul S.F., Zeeberg B., Buetow K.H., Schaefer C.F., Bhat N.K.,
RA   Hopkins R.F., Jordan H., Moore T., Max S.I., Wang J., Hsieh F.,
RA   Diatchenko L., Marusina K., Farmer A.A., Rubin G.M., Hong L.,
RA   Stapleton M., Soares M.B., Bonaldo M.F., Casavant T.L., Scheetz T.E.,
RA   Brownstein M.J., Usdin T.B., Toshiyuki S., Carninci P., Prange C.,
RA   Raha S.S., Loquellano N.A., Peters G.J., Abramson R.D., Mullahy S.J.,
RA   Bosak S.A., McEwan P.J., McKernan K.J., Malek J.A., Gunaratne P.H.,
RA   Richards S., Worley K.C., Hale S., Garcia A.M., Gay L.J., Hulyk S.W.,
RA   Villalon D.K., Muzny D.M., Sodergren E.J., Lu X., Gibbs R.A.,
RA   Fahey J., Helton E., Ketteman M., Madan A., Rodrigues S., Sanchez A.,
RA   Whiting M., Madan A., Young A.C., Shevchenko Y., Bouffard G.G.,
RA   Blakesley R.W., Touchman J.W., Green E.D., Dickson M.C.,
RA   Rodriguez A.C., Grimwood J., Schmutz J., Myers R.M.,
RA   Butterfield Y.S.N., Krzywinski M.I., Skalska U., Smailus D.E.,
RA   Schnerch A., Schein J.E., Jones S.J.M., Marra M.A.;
RT   "Generation and initial analysis of more than 15,000 full-length
RT   human and mouse cDNA sequences.";
RL   Proc. Natl. Acad. Sci. U.S.A. 99:16899-16903(2002).
RN   [6]
RP   REVIEW.
RX   MEDLINE=99321812; PubMed=10393484;
RA   Baumann G.;
RT   "Growth hormone heterogeneity in human pituitary and plasma.";
RL   Horm. Res. 51 Suppl. 1:2-6(1999).
CC   -!- FUNCTION: Plays an important role in growth control. Its major
CC       role in stimulating body growth is to stimulate the liver and
CC       other tissues to secrete IGF-1. It stimulates both the
CC       differentiation and proliferation of myoblasts. It also stimulates
CC       amino acid uptake and protein synthesis in muscle and other
CC       tissues.
CC   -!- SUBUNIT: Monomer, dimer, trimer, tetramer and pentamer, disulfide-
CC       linked or non-covalently associated, in homopolymeric and
CC       heteropolymeric combinations. Can also form a complex either with
CC       GHBP or with the alpha2-macroglobulin complex.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- ALTERNATIVE PRODUCTS:
CC       Event=Alternative splicing; Named isoforms=2;
CC       Name=1; Synonyms=GH-V1;
CC         IsoId=P01242-1; Sequence=Displayed;
CC       Name=2; Synonyms=GH-V2;
CC         IsoId=P01242-2; Sequence=VSP_006203;
CC         Note=No experimental confirmation available;
CC   -!- TISSUE SPECIFICITY: Expressed in the placenta.
CC   -!- SIMILARITY: Belongs to the somatotropin/prolactin family.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
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CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; K00470; AAA98619.1; -.
DR   EMBL; J03756; AAB59547.1; -.
DR   EMBL; J03756; AAB59548.1; -.
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DR   EMBL; M38451; AAA35891.1; -.
DR   EMBL; J03071; AAA52552.1; -.
DR   EMBL; BC020760; AAH20760.1; -.
DR   PIR; A28072; STHUV2.
DR   PIR; D32435; STHUV.
DR   HSSP; P01241; 1A22.
DR   Genew; HGNC:4262; GH2.
DR   MIM; 139240; -.
DR   GO; GO:0005180; F:peptide hormone; TAS.
DR   InterPro; IPR001400; Somatotropin.
DR   Pfam; PF00103; hormone; 1.
DR   PRINTS; PR00836; SOMATOTROPIN.
DR   PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR   PROSITE; PS00338; SOMATOTROPIN_2; 1.
KW   Hormone; Placenta; Signal; Glycoprotein; Alternative splicing;
KW   Polymorphism.
FT   SIGNAL        1     26
FT   CHAIN        27    217       GROWTH HORMONE VARIANT.
FT   DISULFID     79    191       BY SIMILARITY.
FT   DISULFID    208    215       BY SIMILARITY.
FT   CARBOHYD    166    166       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   VARSPLIC    153    217       RLEDGSPRTGQIFNQSYSKFDTKSHNDDALLKNYGLLYCFR
FT                                KDMDKVETFLRIVQCRSVEGSCGF -> VRVAPGIPNPGAP
FT                                LASRDWGEKHCCPLFSSQALTQENSPYSSFPLVNPPGLSLQ
FT                                PGGEGGKWMNERGREQCPSAWPLLLFLHFAEAGRWQPPDWA
FT                                DLQSVLQQV (in isoform 2).
FT                                /FTId=VSP_006203.
FT   VARIANT      90     90       R -> W (in dbSNP:5389).
FT                                /FTId=VAR_014591.
FT   CONFLICT    109    109       I -> T (IN REF. 2).
SQ   SEQUENCE   217 AA;  24999 MW;  7B9324698E822F96 CRC64;
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  Query Match             89.8%;  Score 422;  DB 1;  Length 217;
  Best Local Similarity   92.3%;  Pred. No. 3.1e-37;
  Matches   84;  Conservative    3;  Mismatches    4;  Indels    0;  Gaps    0;

Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
              |||||||||||||||| ||:|||:|||||||||| |||||||||||||| |||||||
Db         27 FPTIPLSRLFDNAMLRARRLYQLAYDTYQEFEEAYILKEQKYSFLQNPQTSLCFSESIPT 86

Qy         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |||| :|||||||||||||||||||||||||
Db         87 PSNRVKTQQKSNLELLRISLLLIQSWLEPVQ 117
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RESULT 8
SOM2_MACMU
ID   SOM2_MACMU     STANDARD;      PRT;   217 AA.
AC   Q07370; Q28494;
DT   01-NOV-1997 (Rel. 35, Created)
DT   01-NOV-1997 (Rel. 35, Last sequence update)
DT   28-FEB-2003 (Rel. 41, Last annotation update)
DE   Growth hormone variant precursor (GH-V) (Placenta-specific growth
DE   hormone) (Growth hormone 2).
GN   GH2.
OS   Macaca mulatta (Rhesus macaque).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
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OC   Mammalia; Eutheria; Primates; Catarrhini; Cercopithecidae;
OC   Cercopithecinae; Macaca.
OX   NCBI_TaxID=9544;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Golos T.G.;
RL   Submitted (JAN-1994) to the EMBL/GenBank/DDBJ databases.
RN   [2]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Placenta;
RX   MEDLINE=94008724; PubMed=8404617;
RA   Golos T.G., Durning M., Fisher J.M., Fowler P.D.;
RT   "Cloning of four growth hormone/chorionic somatomammotropin-related
RT   complementary deoxyribonucleic acids differentially expressed during
RT   pregnancy in the rhesus monkey placenta.";
RL   Endocrinology 133:1744-1752(1993).
CC   -!- FUNCTION: Plays an important role in growth control. Its major
CC       role in stimulating body growth is to stimulate the liver and
CC       other tissues to secrete IGF-1. It stimulates both the
CC       differentiation and proliferation of myoblasts. It also stimulates
CC       amino acid uptake and protein synthesis in muscle and other
CC       tissues.
CC   -!- SUBCELLULAR LOCATION: Secreted (By similarity).
CC   -!- TISSUE SPECIFICITY: Expressed in the placenta.
CC   -!- SIMILARITY: Belongs to the somatotropin/prolactin family.
CC   ---------------------------------------------------------------------
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CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; U02293; AAA03391.1; -.
DR   EMBL; L16555; AAA20180.1; -.
DR   PIR; I67411; I67411.
DR   HSSP; P01241; 1HGU.
DR   InterPro; IPR001400; Somatotropin.
DR   Pfam; PF00103; hormone; 1.
DR   PRINTS; PR00836; SOMATOTROPIN.
DR   PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR   PROSITE; PS00338; SOMATOTROPIN_2; 1.
KW   Hormone; Placenta; Signal; Glycoprotein.
FT   SIGNAL       1     26       BY SIMILARITY.
FT   CHAIN       27    217       GROWTH HORMONE VARIANT.
FT   DISULFID    79    191       BY SIMILARITY.
FT   DISULFID   208    215       BY SIMILARITY.
FT   CONFLICT    57     57       L -> F (IN REF. 2).
FT   CONFLICT   152    152       E -> G (IN REF. 2).
SQ   SEQUENCE   217 AA;  25221 MW;  8DB116CBC24EA090 CRC64;

  Query Match             84.3%;  Score 396;  DB 1;  Length 217;
  Best Local Similarity   84.6%;  Pred. No. 1.7e-34;
  Matches   77;  Conservative    6;  Mismatches    8;  Indels    0;  Gaps    0;

Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
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                ||||||| ||: |: ||| ||:|||||| : |||||||||||||:|||||| |||||||
Db          27 FPTIPLSWLFNTAVFRAHHLHKLAFDTYPKLEEAYIPKEQKYSFLRNPQTSLCFSESIPT 86

Qy          62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
               |||:|||||||||||| ||||||||||||||
Db          87 PSNKEETQQKSNLELLHISLLLIQSWLEPVQ 117


RESULT 9
PLL_HUMAN
ID   PLL_HUMAN      STANDARD;      PRT;   217 AA.
AC   P01243;
DT   21-JUL-1986 (Rel. 01, Created)
DT   01-APR-1988 (Rel. 07, Last sequence update)
DT   15-MAR-2004 (Rel. 43, Last annotation update)
DE   Lactogen precursor (Choriomammotropin) (Chorionic somatomammotropin).
GN   CSH1 AND CSH2.
OS   Homo sapiens (Human).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX   NCBI_TaxID=9606;
RN   [1]
RP   SEQUENCE FROM N.A. (GENE CSH1).
RX   MEDLINE=85030426; PubMed=6208192;
RA   Selby M.J., Barta A., Baxter J.D., Bell G.I., Eberhardt N.L.;
RT   "Analysis of a major human chorionic somatomammotropin gene. Evidence
RT   for two functional promoter elements.";
RL   J. Biol. Chem. 259:13131-13138(1984).
RN   [2]
RP   SEQUENCE FROM N.A. (GENE CSH2).
RX   MEDLINE=87161235; PubMed=3030680;
RA   Hirt H., Kimelman J., Birnbaum M.J., Chen E.Y., Seeburg P.H.,
RA   Eberhardt N.L., Barta A.;
RT   "The human growth hormone gene locus: structure, evolution, and
RT   allelic variations.";
RL   DNA 6:59-70(1987).
RN   [3]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=83160916; PubMed=6300056;
RA   Barrera-Saldana H.A., Seeburg P.H., Saunders G.F.;
RT   "Two structurally different genes produce the same secreted human
RT   placental lactogen hormone.";
RL   J. Biol. Chem. 258:3787-3793(1983).
RN   [4]
RP   SEQUENCE FROM N.A. (GENES CSH1 AND CSH2).
RX   MEDLINE=89307277; PubMed=2744760;
RA   Chen E.Y., Liao Y.C., Smith D.H., Barrera-Saldana H.A., Gelinas R.E.,
RA   Seeburg P.H.;
RT   "The human growth hormone locus: nucleotide sequence, biology, and
RT   evolution.";
RL   Genomics 4:479-497(1989).
RN   [5]
RP   SEQUENCE.
RX   MEDLINE=83182010; PubMed=7169009;
RA   Seeburg P.H.;
RT   "The human growth hormone gene family: nucleotide sequences show
RT   recent divergence and predict a new polypeptide hormone.";
```

RL DNA 1:239-249(1982).
RN [6]
RP SEQUENCE FROM N.A.
RC TISSUE=Placenta, and Uterus;
RX MEDLINE=22388257; PubMed=12477932;
RA Strausberg R.L., Feingold E.A., Grouse L.H., Derge J.G.,
RA Klausner R.D., Collins F.S., Wagner L., Shenmen C.M., Schuler G.D.,
RA Altschul S.F., Zeeberg B., Buetow K.H., Schaefer C.F., Bhat N.K.,
RA Hopkins R.F., Jordan H., Moore T., Max S.I., Wang J., Hsieh F.,
RA Diatchenko L., Marusina K., Farmer A.A., Rubin G.M., Hong L.,
RA Stapleton M., Soares M.B., Bonaldo M.F., Casavant T.L., Scheetz T.E.,
RA Brownstein M.J., Usdin T.B., Toshiyuki S., Carninci P., Prange C.,
RA Raha S.S., Loquellano N.A., Peters G.J., Abramson R.D., Mullahy S.J.,
RA Bosak S.A., McEwan P.J., McKernan K.J., Malek J.A., Gunaratne P.H.,
RA Richards S., Worley K.C., Hale S., Garcia A.M., Gay L.J., Hulyk S.W.,
RA Villalon D.K., Muzny D.M., Sodergren E.J., Lu X., Gibbs R.A.,
RA Fahey J., Helton E., Ketteman M., Madan A., Rodrigues S., Sanchez A.,
RA Whiting M., Madan A., Young A.C., Shevchenko Y., Bouffard G.G.,
RA Blakesley R.W., Touchman J.W., Green E.D., Dickson M.C.,
RA Rodriguez A.C., Grimwood J., Schmutz J., Myers R.M.,
RA Butterfield Y.S.N., Krzywinski M.I., Skalska U., Smailus D.E.,
RA Schnerch A., Schein J.E., Jones S.J.M., Marra M.A.;
RT "Generation and initial analysis of more than 15,000 full-length
RT human and mouse cDNA sequences.";
RL Proc. Natl. Acad. Sci. U.S.A. 99:16899-16903(2002).
RN [7]
RP SEQUENCE OF 50-217 FROM N.A.
RX MEDLINE=78071761; PubMed=593368;
RA Shine J., Seeburg P.H., Martial J.A., Baxter J.D., Goodman H.M.;
RT "Construction and analysis of recombinant DNA for human chorionic
RT somatomammotropin.";
RL Nature 270:494-499(1977).
RN [8]
RP SEQUENCE OF 27-217.
RX MEDLINE=73201971; PubMed=4712450;
RA Li C.H., Dixon J.S., Chung D.;
RT "Amino acid sequence of human chorionic somatomammotropin.";
RL Arch. Biochem. Biophys. 155:95-110(1973).
RN [9]
RP SEQUENCE OF 27-117.
RX MEDLINE=72016313; PubMed=5286363;
RA Sherwood L.M., Handwerger S., McLaurin W.D., Lanner M.;
RT "Amino-acid sequence of human placental lactogen.";
RL Nature New Biol. 233:59-61(1971).
RN [10]
RP ERRATUM.
RA Sherwood L.M., Handwerger S., McLaurin W.D., Lanner M.;
RL Nature New Biol. 235:64-64(1972).
RN [11]
RP INTERCHAIN DISULFIDE BONDS.
RX MEDLINE=79173081; PubMed=438159;
RA Schneider A.B., Kowalski K., Russell J., Sherwood L.M.;
RT "Identification of the interchain disulfide bonds of dimeric human
RT placental lactogen.";
RL J. Biol. Chem. 254:3782-3787(1979).
CC -!- FUNCTION: Similar to that of somatotropin.
CC -!- SUBCELLULAR LOCATION: Secreted.

```
CC   -!- MISCELLANEOUS: The sequence of CSH1 is shown.
CC   -!- SIMILARITY: Belongs to the somatotropin/prolactin family.
CC   ----------------------------------------------------------------------
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CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ----------------------------------------------------------------------
DR   EMBL; V00573; CAA23836.1; -.
DR   EMBL; J00289; AAA98747.1; -.
DR   EMBL; K02401; AAA52115.1; -.
DR   EMBL; M15894; AAA52116.1; -.
DR   EMBL; J03071; AAA52551.1; -.
DR   EMBL; J00118; AAA98621.1; -.
DR   EMBL; BC002717; AAH02717.1; -.
DR   EMBL; BC005921; AAH05921.1; -.
DR   EMBL; BC020756; AAH20756.1; -.
DR   PIR; A26449; A26449.
DR   PIR; C32435; LCHUC.
DR   HSSP; P01241; 1A22.
DR   Genew; HGNC:2440; CSH1.
DR   Genew; HGNC:2441; CSH2.
DR   MIM; 150200; -.
DR   GO; GO:0007565; P:pregnancy; TAS.
DR   InterPro; IPR001400; Somatotropin.
DR   Pfam; PF00103; hormone; 1.
DR   PRINTS; PR00836; SOMATOTROPIN.
DR   PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR   PROSITE; PS00338; SOMATOTROPIN_2; 1.
KW   Hormone; Placenta; Multigene family; Signal.
FT   SIGNAL       1     26
FT   CHAIN       27    217       LACTOGEN.
FT   DISULFID     79    191
FT   DISULFID    208    215
FT   DISULFID    208    208       INTERCHAIN (WITH C-215 IN A DIMER).
FT   DISULFID    215    215       INTERCHAIN (WITH C-208 IN A DIMER).
FT   VARIANT       3      3       P -> A (IN CSH2).
FT                                /FTId=VAR_007166.
FT   VARIANT     104    105       IS -> L (IN CSH2).
FT                                /FTId=VAR_007167.
FT   CONFLICT     84     84       I -> T (IN REF. 9).
FT   CONFLICT     95     95       MISSING (IN REF. 9).
FT   CONFLICT    116    116       MISSING (IN REF. 9).
FT   CONFLICT    134    136       SDD -> BBS (IN REF. 9).
SQ   SEQUENCE   217 AA;  25020 MW;  235B0DC7A713F431 CRC64;

  Query Match             81.1%;  Score 381;  DB 1;  Length 217;
  Best Local Similarity   82.0%;  Pred. No. 6.3e-33;
  Matches   73;  Conservative    8;  Mismatches    8;  Indels    0;  Gaps    0;

Qy          4 TIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPTPS 63
              |:|||||||:|||:||| |||| |||||||| ||||:|||||| : |||  ||:||||||
Db         29 TVPLSRLFDHAMLQAHRAHQLAIDTYQEFEETYIPKDQKYSFLHDSQTSFCFSDSIPTPS 88
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Qy          64 NREETQQKSNLELLRISLLLIQSWLEPVQ 92
               | ||||||||||||||||||:||||||:
Db          89 NMEETQQKSNLELLRISLLLIESWLEPVR 117


RESULT 10
SOMA_MESAU
ID   SOMA_MESAU     STANDARD;      PRT;   216 AA.
AC   P37886;
DT   01-OCT-1994 (Rel. 30, Created)
DT   01-OCT-1994 (Rel. 30, Last sequence update)
DT   28-FEB-2003 (Rel. 41, Last annotation update)
DE   Somatotropin precursor (Growth hormone).
GN   GH1 OR GH.
OS   Mesocricetus auratus (Golden hamster).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
OC   Mesocricetus.
OX   NCBI_TaxID=10036;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=92063850; PubMed=1954881;
RA   Southard J.N., Sanchez-Jimenez F., Campbell G.T., Talamantes F.;
RT   "Sequence and expression of hamster prolactin and growth hormone
RT   messenger RNAs.";
RL   Endocrinology 129:2965-2971(1991).
CC   -!- FUNCTION: Plays an important role in growth control. Its major
CC       role in stimulating body growth is to stimulate the liver and
CC       other tissues to secrete IGF-1. It stimulates both the
CC       differentiation and proliferation of myoblasts. It also stimulates
CC       amino acid uptake and protein synthesis in muscle and other
CC       tissues.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: Belongs to the somatotropin/prolactin family.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
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CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; S66299; AAB20368.1; -.
DR   PIR; B49159; B49159.
DR   HSSP; P01246; 1BST.
DR   InterPro; IPR001400; Somatotropin.
DR   Pfam; PF00103; hormone; 1.
DR   PRINTS; PR00836; SOMATOTROPIN.
DR   PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR   PROSITE; PS00338; SOMATOTROPIN_2; 1.
KW   Hormone; Pituitary; Signal.
FT   SIGNAL        1     26       BY SIMILARITY.
FT   CHAIN        27    216       SOMATOTROPIN.
FT   DISULFID     78    189       BY SIMILARITY.
FT   DISULFID    206    214       BY SIMILARITY.
SQ   SEQUENCE   216 AA;  24690 MW;  3B69CE32AB6F1166 CRC64;
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  Query Match             66.1%;  Score 310.5;  DB 1;  Length 216;
  Best Local Similarity   67.0%;  Pred. No. 1.6e-25;
  Matches   61;  Conservative   13;  Mismatches   16;  Indels    1;  Gaps    1;

Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
              || :||| || ||:|||  ||||| |||:||| ||||: |:|| :|| ||:  |||:||
Db         27 FPAMPLSSLFANAVLRAQHLHQLAADTYKEFERAYIPEGQRYS-IQNAQTAFCFSETIPA 85

Qy         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |: :|| ||:|::|||| ||||||||| |||
Db         86 PTGKEEAQQRSDMELLRFSLLLIQSWLGPVQ 116


RESULT 11
SOMA_BALBO
ID   SOMA_BALBO     STANDARD;      PRT;   190 AA.
AC   P33092;
DT   01-OCT-1993 (Rel. 27, Created)
DT   01-OCT-1993 (Rel. 27, Last sequence update)
DT   28-FEB-2003 (Rel. 41, Last annotation update)
DE   Somatotropin (Growth hormone).
GN   GH1.
OS   Balaenoptera borealis (Sei whale).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Cetartiodactyla; Cetacea; Mysticeti;
OC   Balaenopteridae; Balaenoptera.
OX   NCBI_TaxID=9768;
RN   [1]
RP   SEQUENCE.
RX   MEDLINE=83000569; PubMed=7115813;
RA   Yudaev N.A., Pankov Y.A., Bulatov A.A., Osipova T.A.;
RT   "Amino acid sequence of seiwhale somatotropin.";
RL   Biokhimiia 47:1059-1069(1982).
RN   [2]
RP   PRELIMINARY PARTIAL SEQUENCE.
RA   Osipova T.A., Bulatov A.A., Pankov Y.A.;
RT   "Structural studies of tryptic peptides from large cyanogen bromide
RT   fragments of sei whale (Balalnoptera borealis) somatotropin.";
RL   Bioorg. Khim. 4:1589-1599(1978).
CC   -!- FUNCTION: Plays an important role in growth control. Its major
CC       role in stimulating body growth is to stimulate the liver and
CC       other tissues to secrete IGF-1. It stimulates both the
CC       differentiation and proliferation of myoblasts. It also stimulates
CC       amino acid uptake and protein synthesis in muscle and other
CC       tissues.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: Belongs to the somatotropin/prolactin family.
DR   PIR; JN0387; JN0387.
DR   PIR; PN0140; PN0140.
DR   HSSP; P01241; 1AXI.
DR   InterPro; IPR001400; Somatotropin.
DR   Pfam; PF00103; hormone; 1.
DR   PRINTS; PR00836; SOMATOTROPIN.
DR   PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR   PROSITE; PS00338; SOMATOTROPIN_2; 1.
KW   Hormone; Pituitary.
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FT   DISULFID     52    163       BY SIMILARITY.
FT   DISULFID    180    188       BY SIMILARITY.
SQ   SEQUENCE   190 AA;  21835 MW;  09FBFF6DB14A75D6 CRC64;

  Query Match             65.4%;  Score 307.5;  DB 1;  Length 190;
  Best Local Similarity   67.0%;  Pred. No. 2.8e-25;
  Matches   61;  Conservative   14;  Mismatches   15;  Indels    1;  Gaps    1;

Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
              || :||| || ||:||| ||:|| |||:||| |||| |:| |||| |:: ||| |||
Db          1 FPAMPLSSLFANAVLRAQHLHELAADTYKEFERAYIPEGQRY-FLQNAQSTGCFSEVIPT 59

Qy         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |:|::| ||:|::|||| ||||||||| |||
Db         60 PANKDEAQQRSDVELLRFSLLLIQSWLGPVQ 90


RESULT 12
SOMA_MOUSE
ID   SOMA_MOUSE     STANDARD;      PRT;   216 AA.
AC   P06880;
DT   01-JAN-1988 (Rel. 06, Created)
DT   01-JAN-1988 (Rel. 06, Last sequence update)
DT   15-MAR-2004 (Rel. 43, Last annotation update)
DE   Somatotropin precursor (Growth hormone).
GN   GH1 OR GH.
OS   Mus musculus (Mouse).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX   NCBI_TaxID=10090;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=85261358; PubMed=2991252;
RA   Linzer D.I.H., Talamantes F.;
RT   "Nucleotide sequence of mouse prolactin and growth hormone mRNAs and
RT   expression of these mRNAs during pregnancy.";
RL   J. Biol. Chem. 260:9574-9579(1985).
RN   [2]
RP   SEQUENCE FROM N.A.
RC   STRAIN=FZTDU; TISSUE=Liver;
RX   MEDLINE=96194803; PubMed=8647448;
RA   Das P., Meyer L., Seyfert H.-M., Brockmann G., Schwerin M.;
RT   "Structure of the growth hormone-encoding gene and its promoter in
RT   mice.";
RL   Gene 169:209-213(1996).
RN   [3]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Pituitary;
RX   MEDLINE=22388257; PubMed=12477932;
RA   Strausberg R.L., Feingold E.A., Grouse L.H., Derge J.G.,
RA   Klausner R.D., Collins F.S., Wagner L., Shenmen C.M., Schuler G.D.,
RA   Altschul S.F., Zeeberg B., Buetow K.H., Schaefer C.F., Bhat N.K.,
RA   Hopkins R.F., Jordan H., Moore T., Max S.I., Wang J., Hsieh F.,
RA   Diatchenko L., Marusina K., Farmer A.A., Rubin G.M., Hong L.,
RA   Stapleton M., Soares M.B., Bonaldo M.F., Casavant T.L., Scheetz T.E.,
RA   Brownstein M.J., Usdin T.B., Toshiyuki S., Carninci P., Prange C.,
RA   Raha S.S., Loquellano N.A., Peters G.J., Abramson R.D., Mullahy S.J.,
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RA   Bosak S.A., McEwan P.J., McKernan K.J., Malek J.A., Gunaratne P.H.,
RA   Richards S., Worley K.C., Hale S., Garcia A.M., Gay L.J., Hulyk S.W.,
RA   Villalon D.K., Muzny D.M., Sodergren E.J., Lu X., Gibbs R.A.,
RA   Fahey J., Helton E., Ketteman M., Madan A., Rodrigues S., Sanchez A.,
RA   Whiting M., Madan A., Young A.C., Shevchenko Y., Bouffard G.G.,
RA   Blakesley R.W., Touchman J.W., Green E.D., Dickson M.C.,
RA   Rodriguez A.C., Grimwood J., Schmutz J., Myers R.M.,
RA   Butterfield Y.S.N., Krzywinski M.I., Skalska U., Smailus D.E.,
RA   Schnerch A., Schein J.E., Jones S.J.M., Marra M.A.;
RT   "Generation and initial analysis of more than 15,000 full-length
RT   human and mouse cDNA sequences.";
RL   Proc. Natl. Acad. Sci. U.S.A. 99:16899-16903(2002).
CC   -!- FUNCTION: Plays an important role in growth control. Its major
CC       role in stimulating body growth is to stimulate the liver and
CC       other tissues to secrete IGF-1. It stimulates both the
CC       differentiation and proliferation of myoblasts. It also stimulates
CC       amino acid uptake and protein synthesis in muscle and other
CC       tissues.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: Belongs to the somatotropin/prolactin family.
CC   ---------------------------------------------------------------------
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CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; X02891; CAA26650.1; -.
DR   EMBL; Z46663; CAA86658.1; -.
DR   EMBL; BC061157; AAH61157.1; -.
DR   PIR; B23911; STMS.
DR   HSSP; P01246; 1BST.
DR   MGD; MGI:95707; Gh.
DR   InterPro; IPR001400; Somatotropin.
DR   Pfam; PF00103; hormone; 1.
DR   PRINTS; PR00836; SOMATOTROPIN.
DR   PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR   PROSITE; PS00338; SOMATOTROPIN_2; 1.
KW   Hormone; Pituitary; Signal.
FT   SIGNAL        1     26       BY SIMILARITY.
FT   CHAIN        27    216       SOMATOTROPIN.
FT   DISULFID     78    189       BY SIMILARITY.
FT   DISULFID    206    214       BY SIMILARITY.
SQ   SEQUENCE   216 AA;  24716 MW;  98666A3AE25D65FC CRC64;

  Query Match             64.8%;  Score 304.5;  DB 1;  Length 216;
  Best Local Similarity   64.8%;  Pred. No. 6.8e-25;
  Matches   59;  Conservative   14;  Mismatches   17;  Indels    1;  Gaps    1;

Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
              || :||| || ||:|||  ||||| |||:||| ||||: |:|| :|| | :  |||:||
Db         27 FPAMPLSSLFSNAVLRAQHLHQLAADTYKEFERAYIPEGQRYS-IQNAQAAFCFSETIPA 85

Qy         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |: :|| ||::::|||| ||||||||| |||
```

```
Db         86 PTGKEEAQQRTDMELLRFSLLLIQSWLGPVQ 116


RESULT 13
SOMA_HORSE
ID   SOMA_HORSE     STANDARD;      PRT;   216 AA.
AC   P01245;
DT   21-JUL-1986 (Rel. 01, Created)
DT   01-NOV-1995 (Rel. 32, Last sequence update)
DT   28-FEB-2003 (Rel. 41, Last annotation update)
DE   Somatotropin precursor (Growth hormone).
GN   GH1.
OS   Equus caballus (Horse).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Perissodactyla; Equidae; Equus.
OX   NCBI_TaxID=9796;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Pituitary;
RX   MEDLINE=94266171; PubMed=8206392;
RA   Ascacio-Martinez J.A., Barrera-Saldana H.A.;
RT   "Sequence of a cDNA encoding horse growth hormone.";
RL   Gene 143:299-300(1994).
RN   [2]
RP   SEQUENCE OF 27-216.
RX   MEDLINE=77005410; PubMed=965151;
RA   Zakin M.M., Poskus E., Langton A.A., Ferrara P., Santome J.A.,
RA   Dellacha J.M., Paladini A.C.;
RT   "Primary structure of equine growth hormone.";
RL   Int. J. Pept. Protein Res. 8:435-444(1976).
RN   [3]
RP   PRELIMINARY SEQUENCE OF 27-216.
RX   MEDLINE=74020362; PubMed=4747849;
RA   Zakin M.M., Poskus E., Dellacha J.M., Paladini A.C., Santome J.A.;
RT   "The amino acid sequence of equine growth hormone.";
RL   FEBS Lett. 34:353-355(1973).
RN   [4]
RP   SEQUENCE OF 68-95 AND 183-216.
RA   Zakin M.M., Poskus E., Dellacha J.M., Paladini A.C., Santome J.A.;
RT   "Amino acid sequences around the cystine residues in equine growth
RT   hormone.";
RL   FEBS Lett. 25:77-82(1972).
RN   [5]
RP   SEQUENCE OF 202-216.
RX   MEDLINE=68368390; PubMed=4876100;
RA   Oliver L., Hartree A.S.;
RT   "Amino acid sequences around the cystine residues in horse growth
RT   hormone.";
RL   Biochem. J. 109:19-24(1968).
CC   -!- FUNCTION: Plays an important role in growth control. Its major
CC       role in stimulating body growth is to stimulate the liver and
CC       other tissues to secrete IGF-1. It stimulates both the
CC       differentiation and proliferation of myoblasts. It also stimulates
CC       amino acid uptake and protein synthesis in muscle and other
CC       tissues.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: Belongs to the somatotropin/prolactin family.
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CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; U02929; AAA21027.1; -.
DR   HSSP; P01246; 1BST.
DR   InterPro; IPR001400; Somatotropin.
DR   Pfam; PF00103; hormone; 1.
DR   PRINTS; PR00836; SOMATOTROPIN.
DR   PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR   PROSITE; PS00338; SOMATOTROPIN_2; 1.
KW   Hormone; Pituitary; Signal.
FT   SIGNAL        1     26
FT   CHAIN        27    216       SOMATOTROPIN.
FT   DISULFID     78    189
FT   DISULFID    206    214
SQ   SEQUENCE   216 AA;  24423 MW;  37AB3173834D11AC CRC64;

  Query Match             64.4%;  Score 302.5;  DB 1;  Length 216;
  Best Local Similarity   64.8%;  Pred. No. 1.1e-24;
  Matches   59;  Conservative   14;  Mismatches   17;  Indels    1;  Gaps    1;

Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
              || :||| || ||:||| ||||| |||:||| ||||: |:|| :|| | :  |||:||
Db         27 FPAMPLSSLFANAVLRAQHLHQLAADTYKEFERAYIPEGQRYS-IQNAQAAFCFSETIPA 85

Qy         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |: ::| ||:|::|||| ||||||||| |||
Db         86 PTGKDEAQQRSDMELLRFSLLLIQSWLGPVQ 116


RESULT 14
SOMA_RABIT
ID   SOMA_RABIT     STANDARD;      PRT;   216 AA.
AC   P46407;
DT   01-NOV-1995 (Rel. 32, Created)
DT   01-NOV-1995 (Rel. 32, Last sequence update)
DT   28-FEB-2003 (Rel. 41, Last annotation update)
DE   Somatotropin precursor (Growth hormone).
GN   GH1.
OS   Oryctolagus cuniculus (Rabbit).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus.
OX   NCBI_TaxID=9986;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=New Zealand white;
RX   MEDLINE=96011643; PubMed=7590276;
RA   Wallis O.C., Wallis M.;
RT   "Cloning and characterisation of the rabbit growth hormone-encoding
RT   gene.";
RL   Gene 163:253-256(1995).
```

```
CC   -!- FUNCTION: Plays an important role in growth control. Its major
CC       role in stimulating body growth is to stimulate the liver and
CC       other tissues to secrete IGF-1. It stimulates both the
CC       differentiation and proliferation of myoblasts. It also stimulates
CC       amino acid uptake and protein synthesis in muscle and other
CC       tissues.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: Belongs to the somatotropin/prolactin family.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
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CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; Z38127; CAA86287.1; -.
DR   PIR; S49483; S49483.
DR   HSSP; P01246; 1BST.
DR   InterPro; IPR001400; Somatotropin.
DR   Pfam; PF00103; hormone; 1.
DR   PRINTS; PR00836; SOMATOTROPIN.
DR   PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR   PROSITE; PS00338; SOMATOTROPIN_2; 1.
KW   Hormone; Pituitary; Signal.
FT   SIGNAL        1     26       POTENTIAL.
FT   CHAIN        27    216       SOMATOTROPIN.
FT   DISULFID     78    189       BY SIMILARITY.
FT   DISULFID    206    214       BY SIMILARITY.
SQ   SEQUENCE   216 AA;  24433 MW;  6EC19748199F9D75 CRC64;

  Query Match             64.4%;  Score 302.5;  DB 1;  Length 216;
  Best Local Similarity   64.8%;  Pred. No. 1.1e-24;
  Matches   59;  Conservative   14;  Mismatches   17;  Indels    1;  Gaps    1;

Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
              || :||| || ||:|||  ||||| |||:||| ||||: |:|| :|| | :  |||:||
Db         27 FPAMPLSSLFANAVLRAQHLHQLAADTYKEFERAYIPEGQRYS-IQNAQAAFCFSETIPA 85

Qy         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |: ::| ||:|::|||| ||||||||| |||
Db         86 PTGKDEAQQRSDMELLRFSLLLIQSWLGPVQ 116


RESULT 15
SOMA_RAT
ID   SOMA_RAT       STANDARD;      PRT;   216 AA.
AC   P01244;
DT   21-JUL-1986 (Rel. 01, Created)
DT   21-JUL-1986 (Rel. 01, Last sequence update)
DT   28-FEB-2003 (Rel. 41, Last annotation update)
DE   Somatotropin precursor (Growth hormone).
GN   GH1 OR GH.
OS   Rattus norvegicus (Rat).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
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OX   NCBI_TaxID=10116;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=82059526; PubMed=6272224;
RA   Page G.S., Smith S., Goodman H.M.;
RT   "DNA sequence of the rat growth hormone gene: location of the 5'
RT   terminus of the growth hormone mRNA and identification of an internal
RT   transposon-like element.";
RL   Nucleic Acids Res. 9:2087-2104(1981).
RN   [2]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=78071760; PubMed=339105;
RA   Seeburg P.H., Shine J., Martial J.A., Baxter J.D., Goodman H.M.;
RT   "Nucleotide sequence and amplification in bacteria of structural gene
RT   for rat growth hormone.";
RL   Nature 270:486-494(1977).
RN   [3]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Liver;
RX   MEDLINE=82060155; PubMed=6946433;
RA   Barta A., Richards R.I., Baxter J.D., Shine J.;
RT   "Primary structure and evolution of rat growth hormone gene.";
RL   Proc. Natl. Acad. Sci. U.S.A. 78:4867-4871(1981).
RN   [4]
RP   SEQUENCE FROM N.A.
RC   STRAIN=Sprague-Dawley;
RX   MEDLINE=96056604; PubMed=8521139;
RA   Rohn W.M., Weigent D.A.;
RT   "Cloning and nucleotide sequencing of rat lymphocyte growth hormone
RT   cDNA.";
RL   Neuroimmunomodulation 2:108-114(1995).
CC   -!- FUNCTION: Plays an important role in growth control. Its major
CC       role in stimulating body growth is to stimulate the liver and
CC       other tissues to secrete IGF-1. It stimulates both the
CC       differentiation and proliferation of myoblasts. It also stimulates
CC       amino acid uptake and protein synthesis in muscle and other
CC       tissues.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: Belongs to the somatotropin/prolactin family.
CC   ---------------------------------------------------------------------
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CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; V01237; CAA24547.1; -.
DR   EMBL; V01238; CAA24548.1; -.
DR   EMBL; V01239; CAA24549.1; -.
DR   EMBL; U62779; AAB04025.1; -.
DR   PIR; A93725; STRT.
DR   HSSP; P01246; 1BST.
DR   InterPro; IPR001400; Somatotropin.
DR   Pfam; PF00103; hormone; 1.
DR   PRINTS; PR00836; SOMATOTROPIN.
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DR   PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR   PROSITE; PS00338; SOMATOTROPIN_2; 1.
KW   Hormone; Pituitary; Signal.
FT   SIGNAL        1     26
FT   CHAIN        27    216       SOMATOTROPIN.
FT   DISULFID     78    189       BY SIMILARITY.
FT   DISULFID    206    214       BY SIMILARITY.
FT   CONFLICT     27     27       F -> L (IN REF. 2 AND 4).
SQ   SEQUENCE   216 AA;  24656 MW;  CABF49DC0B2A226C CRC64;

  Query Match             64.4%;  Score 302.5;  DB 1;  Length 216;
  Best Local Similarity   64.8%;  Pred. No. 1.1e-24;
  Matches   59;  Conservative   14;  Mismatches   17;  Indels    1;  Gaps    1;

Qy          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
              || :||| || ||:|||  ||||| |||:||| ||||: |:|| :|| | :  |||:||
Db         27 FPAMPLSSLFANAVLRAQHLHQLAADTYKEFERAYIPEGQRYS-IQNAQAAFCFSETIPA 85

Qy         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
              |: :|| ||::::|||| |||||||||| |||
Db         86 PTGKEEAQQRTDMELLRFSLLLIQSWLGPVQ 116


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